NORTHEAST MARKETING ISSUE
Pages 9-16

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Fertilization of Pasture Yardstick: Crop or Failure

EDITOR'S NOTE: Beginning next week Croplife will publish, through four issues, special material on the potential of fertilizers and farm chemicals in maintenance of pasture lands. A preview of that potential appears in the story below.

By JOHN CIPPERLY
Croplife Washington Correspondent

WASHINGTON—There is real potential for the plant food industry in development of business in pasture land activities in the farm communities, according to estimates of top scientists at the big highly respected U.S. Department of Agriculture station at Beltsville, Md.

These scientists say that the economic aspect of the use of plant foods for pasture crop land may be roughly measured in terms of a crop or a failure. The latter would involve renovating or re-seeding land if a pasture crop failed to develop due to the absence of necessary plant food requirements.

This is a black and white picture of fertilizer in the farm pasture pattern.

Thus far USDA has been unable through lack of research funds to develop a more precise estimate of what the difference between good

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Soybean Pest Quarantine Hearing Set for Memphis

WASHINGTON—A hearing will be held July 24 in Memphis to determine whether or not to establish a soybean cyst nematode quarantine in Kentucky and Arkansas. The U.S. Department of Agriculture already has announced plans to quarantine infested areas in Missouri, North Carolina and Tennessee.

Spencer Begins Urea Output in Mississippi Plant

KANSAS CITY — Spencer Chemical Co. has announced that the production of urea is now underway at the company's Vicksburg, Miss., Works which was just recently expanded to include the new product. J. C. Denton, vice president, agricultural chemicals, said that the new facilities are relatively small having a capacity for only 10,000 tons per year. The cost of the new installation was not disclosed.

The production of urea will complement other nitrogen compounds produced at the Vicksburg Works, Mr. Denton said. The urea will be used to formulate nitrogen solutions distributed to manufacturers of mixed fertilizers.

There will be no increase in ammonia capacity as a result of the new product. Spencer obtained the urea process under license agreement with Montecatini of Milan, Italy. Spencer constructed the Vicksburg Works in 1954 to produce ammonia and nitrogen solutions. In addition the company operates nitrogen plants at Henderson, Ky., and Pittsburg, Kansas.

Pest Control Product Sales in Canada Gain 8% in 1956

WINNIPEG—Sales of pest control products in Canada in 1956 were valued at $24,685,259, an increase of 8% over $22,853,337 in 1955. The gain was a continuation of the trend which has been steadily upward since 1947 when sales were first compiled by the Dominion Bureau of Statistics.

Sales of agricultural dusts and sprays declined 8.4% in 1956 to $7,179,849 from $7,834,174 in 1955. Livestock treatment sales were valued at $7,000,906, up 46% from $4,798,100. Herbicide sales increased 4% to $5,974,111 from $5,730,197, and insecticide sales 2.5% to $4,207,678 from $4,104,352. Sales of rodenticides declined 20% to $322,715 from $386,514.

Big Demand for Trained Entomologists Emphasized at Pacific Branch ESA Meeting

PORTLAND, ORE.—Some 300 entomologists, representing industry, state experiment stations, state departments of agriculture and the U.S. Department of Agriculture, checked in at the 41st annual meeting of the Pacific Branch, Entomological Society of America, held here June 26-28.

Leslie M. Smith, University of California entomologist at Davis was elected chairman-elect, while E. H. Littooy, Colloidal Products Corp., San Francisco, Cal., was reelected as representative to the governing board. H. H. Kiefer of the California State Department of Agriculture, Sacramento, was re-named secretary-treasurer.

New executive committee members selected by the group are Horace S. Telford, Washington State College, Pullman, and H. B. Manis, University of Idaho, Moscow.

Next year's 42nd annual meeting will be held at San Diego, Cal., while this year's national convention of the Entomological Society of America is scheduled December 2-5 at Memphis.

H. M. Armitage, Sacramento, Cal., national president of the En-

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PACIFIC NORTHWEST GROUP TOLD

Careful Research Needed To Unlock Potential of Forest Land Fertilization

PORTLAND, ORE.—Foresters need to give serious consideration to fertilization of forest lands, but overselling with the wrong treatments will kill the potential of this area of plant food use, members of the Pacific Northwest Plant Food Assn. were told at the eighth regional fertilizer conference held here June 26-28.

Dr. S. P. Gessel, University of Washington, who discussed potential fertilizer use by the forest industry, was one of a score of speakers on the program. In addition to talks on plant food relationships, test plot results, soil testing programs and pasture and forage crop production, the program included several tours.

Dr. Gessel said that the forest industry has and is undergoing the change from a mining operation to one of resource management. Forest product and forest land values have increased markedly making for the possibility of intensive forest management. Pulp production has also become an important part of the Northwest forest economy.

These forces have all brought about the philosophy of producing the most on each acre of forest land, Dr. Gessel said. This has concentrated thought on factors affecting growth of forest trees.

This work, in conjunction with similar work in other parts of the U.S. and the world, has indicated that foresters need to give serious consideration to fertilization of forest land.

Dr. Gessel said that a survey of the work indicates that fertilizers have:

Increased height and diameter growth and hence wood value, shortened time to mature a crop, increased resistance of trees to certain infestations, increased seed

(Continued on page 20)

Six Potash Firms State Reasons for NPFI Resignation

EDITOR'S NOTE: Following the resignation of six major domestic potash producers from the National Plant Food Institute (Croplife, July 1, page 1) the withdrawing companies have made public the following statement to explain their position and to outline their reasons for this action:

"Major domestic potash producers, maintaining membership in both the American Potash Institute and the National Plant Food Institute, resigned recently from the NPFI because of greatly increased and what they consider to be inequitable NPFI assessments to finance its expanded program of activities.

"The potash producers pointed out that the proposed new program of the National Plant Food Institute is basically similar to activities conducted by the Potash Institute since the latter's formation in 1935. During that time, the Potash Institute has spent more than $10,000,000 in promoting balanced fertilization programs aimed at increasing the proper use of potash as well as other plant nutrients in the form of mixed fertilizers.

"During the 22 years of API activity, the consumption of agricultural potash in this country has risen from 218,157 tons in 1935 to 2,103,127 tons in 1956. Nevertheless, the price of potash has not

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NPFI Appoints Group to Study Dues Structure

WASHINGTON — John A. Miller, president of the National Plant Food Institute, has announced the appointment of a five man committee "to evaluate the dues structure of the Institute to determine whether there are any inequities" and to report their findings to the board of directors at a meeting scheduled for Oct. 30.

The committee follows:

William E. McGuirk, Jr., president, Davison Chemical Co. division of W. R. Grace & Co., chairman; B. W. Bellinger, executive vice president, Tennessee Corp.; J. C. Crissey, division manager, GLF Soil Building Service; Hugo Riemer, president, Nitrogen Division, Allied Chemical & Dye Corp., and Richard C. Wells, president, National Potash Co.

The committee will consider any differences in views regarding the dues structure approved by the board of directors. Because of the importance of the study an official report of findings will not be available until after the board meeting is held.

Cockroaches Help USDA Scientists in Insecticide Studies

WASHINGTON — Entomologists and chemists of the U.S. Department of Agricultural Research Service concerned with insect resistance to insecticides are rearing cockroaches as "guinea pigs" for laboratory experiments.

At least 12 species of cockroaches are being maintained at USDA Agricultural Research Center, Beltsville, Md. They range in size from those less than half an inch long to winged giants more than 2 in. in length, introduced into this country from South America. There are native American roaches, the German species and a variety of "undesirable aliens" from other parts of the world.

In laboratory work at Beltsville, covering broad phases of insecticidal and physiological studies, roaches are being used to evaluate household sprays including aerosols to determine their effectiveness and the quantities of insecticide required and to provide a basis for accurate labeling of these products.

The rearing of the roach cultures permits close study of the habits and characteristics of different species of roaches—knowledge that is needed for effective control or eradication programs. Also, because roaches are relatively large, they are excellent laboratory subjects for dissection. Their use in this respect is expected to greatly increase knowledge of insect physiology and may easily lead to findings of major importance, USDA says.

Dissection, so far as insect control is concerned, offers a means by which the effect of insecticides on various organs can be studied. Such studies include the use of radio-active insecticides on the roaches and dissection later to determine, by the use of instruments which measure radioactivity, the presence and quantities of insecticides in the various insect organs.

Turkish Tobacco Output Gains in Kentucky

LOUISVILLE—More Turkish type of tobacco is being grown in Kentucky this year. Last year a few growers produced Turkish leaf in Johnson and Floyd Counties of Eastern Kentucky. This year there are 20 additional growers located in 10 counties undertaking such production. Growing of this type of tobacco is not under acreage control such as imposed on burley and other normal American types. Ira Massie, a specialist, has been assigned to the project by the University of Kentucky agricultural extension service.

Mr. Massie admits that the Turkish growers have some problems and have a long way to go in licking them. This type of tobacco is tricky to grow, and farmers must follow directions very closely to avoid failure. Turkish tobacco crops have been planted this year in Adair, Green, Taylor, Lincoln, Woodford, Jackson, Morgan, Elliott, Magoffin, Floyd and Johnson Counties.

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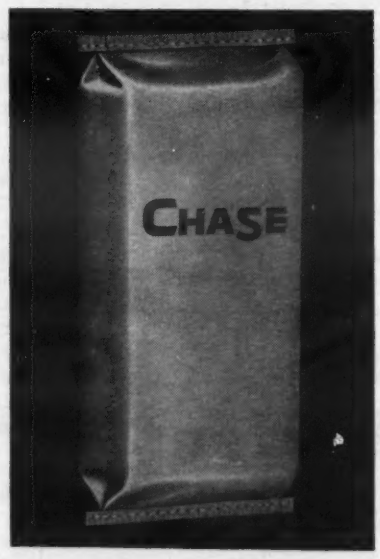

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Ralph W. Donaldson, Massachusetts Soil Expert, Retires

AMHERST, MASS. — Prof. Ralph W. Donaldson, extension agronomist at the University of Massachusetts, retired July 1 after 32 years of extension work in agricultural education. Born in Nova Scotia on a fruit and dairy farm, he obtained his B.A. at Acadia University and a B.S.A. from Toronto University. A veteran of World War I, he served 4½ years overseas with the Canadian Army and was awarded the Military Cross.

He started his professional activities in agriculture immediately following the war. Before coming to Massachusetts, he spent five years as field supervisor for the Soldier Settlement Boards of Canada in the work of establishing veterans on farms.

In 1925 he resigned and moved to Waltham, Mass., and became an associate county agent in Middlesex County. Mr. Donaldson was appointed extension agronomist in 1928 and moved to Amherst, where he made his headquarters in the College of Agriculture at the University of Massachusetts.

Promotion of improved techniques in farming has always been his main interest. In 1927, his "County Program of Soil Improvement" won recognition among seven others chosen in a nationwide contest.

As extension agronomist, he made numerous contributions to better farming. He helped introduce the use of borax in Massachusetts 25 years ago as the remedy for boron deficiency existing in rutabagas, certain other vegetables and legume crops. Marked increase in potash yields resulted from his promotion of potato clubs, which emphasized benefits of thorough spraying and the efficient use of fertilizer and certified seed.

In forage production, Mr. Donaldson was among the first to promote use of crop land grazing, and to introduce Ladino clover in Massachusetts. His efforts focused attention on the high potash needs of legumes through many farm trials, and he played an important role in the development of trench silo methods of storing forage in Massachusetts. He also pioneered the use of plastic covers for such silos.

Mr. Donaldson helped initiate "The Green Pastures Program for New England," and encouraged the production of a professional movie film which carried the "Green Pastures" story to other states, Canada and England.

Mr. Donaldson wrote numerous leaflets on the subjects of liming, soil fertilizers and various field crops. A member of the northeastern branch of the American Society of Agronomy, to which he has belonged for 30 years, he has served on many of its committees. In 1950, he was elected a fellow of this scientific society for his meritorious contributions in the field of agronomy.

Raymond C. Dosta in New U.S. Borax Post

LOS ANGELES — Raymond C. Dosta, former assistant treasurer of the U.S. Borax & Chemical Corp., has been promoted to treasurer, succeeding R. F. Steel, it is announced by James M. Gerstley, president. It is a position that Mr. Dosta has been filling since Mr. Steel's appointment several weeks ago to the newly-created post of assistant general manager.

Mr. Dosta joined the Pacific Coast Borax Co. as tax manager in 1951. He was made assistant controller the next year and in 1956, when the company was merged with the U.S. Potash Co. to form the present corporation, he was named assistant treasurer.

Sy Friedman

Sy Friedman Joins Emulsol Chemical

CHICAGO—Emulsol Chemical Corp., a division of Witco Chemical Co., has announced the appointment of Sy Friedman to its sales staff as assistant to A. O. Raven, sales manager. Mr. Friedman will make his headquarters at Emulsol's general sales office at 75 E. Wacker Drive, Chicago 1, Ill.

Mr. Friedman was formerly with the research department of Stauffer Chemical Co. He is a graduate of the College of the City of New York with a B.S. degree in chemistry. His post graduate work was at Brooklyn Polytechnic Institute Graduate School in mathematics, physical chemistry and surfactant technology.

Weed Control May Prevent Abortion

MADISON, WIS.—A shot of 2, 4-D right now can clean out some pasture weeds, and may prevent some abortion troubles in dairy herds, according to Julian Sund, University of Wisconsin agronomist. He says some common weeds in unimproved pastures can carry heavy loads of nitrates. This is most likely to happen in marshland pastures, where the soil contains high amounts of nitrogen.

The nitrates in the weeds can cause cattle to abort, Mr. Sund says. This seems to be the cause of many mysterious abortions on marshland pastures in the central part of the state. Along with University veterinary scientists, Mr. Sund will summarize research findings on the cause and prevention of such abortions at this year's Grassland Field Day at the Marshfield Branch Experiment Station July 18.

Hercules Changes Name Of Missouri Works

WILMINGTON, DEL.—Hercules Powder Co. has changed the name of its Missouri Ammonia Works at Louisiana, Mo., to Missouri Chemical Works. The company said that the increasing number of chemical materials produced at the site caused the former name to be misleading.

Missouri Chemical Works produced only anhydrous ammonia from the time Hercules purchased the plant in the spring of 1954 until a few months ago when production of pentaerythritol and formaldehyde began. A new methanol plant also is nearing completion at the site.

Ohio Anhydrous Group Schedules July Meeting

COLUMBUS, OHIO—The Ohio Agricultural Ammonia Assn. will meet at 11:30 a.m. July 18 at the Everglades Restaurant here, according to an announcement by John Studer, Findlay Ice & Fuel Co., Findlay, Ohio, secretary.

Alabama Fertilizer Conference, Tour Set for July 30-31

AUBURN, ALA.—The 1957 fertilizer conference and tour of field experiments sponsored by the Alabama Polytechnic Institute Agricultural Experiment Station, with the Alabama Soil Fertility Society cooperating, will be held at Auburn July 30 and Thorsby July 31, according to an announcement by Dr. Howard T. Rogers, head of the agronomy and soils department.

Field tours at Auburn will show research on irrigation and fertilization of forage crops for dairy cattle, fertilizer experiments on row crops, and adaptability, fertilization and management of turf grasses.

The visit to Thorsby calls for a tour of the Foundation Seed Stocks Farm where production of high quality foundation seed, research on irrigation of forages and high nitrogen on cotton will be observed. In addition, the horticultural substation, also located near Thorsby, will be visited and research on fertilization, irrigation and varieties of horticultural crops will be seen. Indoors conferences will be held at Auburn.

DIAMOND ALKALI GRANT

MANHATTAN, KANSAS—Research at Kansas State College on use of fumigants to control insects attacking stored grains will be furthered with a $7,500 grant from Diamond Alkali Co., Cleveland, to the department of entomology of the Kansas agricultural experiment station. The research will be concerned with new combinations of presently used fumigants, and with new formulations. Methods of evaluating and testing fumigants also will be studied. The research will be directed by Donald A. Wilbur, Kansas State entomologist. Phillip K. Harein, who for the past two years has been with a large milling company, is joining the staff to work on the project.

Dow Opens Sales Office in Pittsburgh

MIDLAND, MICH. — The Dow Chemical Co. has opened a new sales office at 1 Gateway Center in Pittsburgh (22), Pa. Named as manager of the office is Donald H. Gilmore, formerly supervisor of magnesium sales for the company's Cleveland sales office. The office, 17th established by Dow in principal cities, will service portions of Pennsylvania, West Virginia, Maryland and Ohio.

Arkansas Sales

LITTLE ROCK—Arkansas fertilizer sales during May totaled 52,965 tons, compared with 40,577 tons in May, 1956, according to the State Plant Board. Sales for the first 11 months (July-May) of this fiscal year totaled 298,315 tons, a decrease from 333,780 in a comparable period a year earlier.

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INSECT, PLANT DISEASE NOTES

Illinois Reports Gains In Corn Borer Fight

SPRINGFIELD, ILL.—Throughout much of Illinois corn borer moths have concentrated their egg laying in the most advanced fields. In some communities this represents as much as 10% of all fields, while in others it may be less than 1%. To suppress borer populations, these advanced fields should be treated. Treatments will benefit not only the entire community, but also individual fields.

In central Illinois (from a line from Paris to Carrollton on the south to highway route 6 on the north) all egg masses have hatched. The most advanced fields now have a tassel ratio well in excess of 30, and maximum control from treatment will decrease after July 4. In the northern part of the area, hatch was completed early in the week of July 1.

In northern Illinois (north of highway route 6) moth emergence was complete and egg laying nearly so on July 1. But in northeastern Illinois a few moths will still be emerging, and some egg laying will continue until approximately July 10.

In the central section of Illinois, concentrations of grasshoppers have been noted in fence rows. Also, particularly in western and southwestern Illinois, they are abundant in some alfalfa fields.—H. B. Petty.

Massachusetts Battles Apple Maggot Flies

AMHERST, MASS. — The emergence of 70 apple maggot flies or about 8% of the expected number is reported.

No new secondary apple scab infections were found during the week. There may be a change in this situation in about eight days in orchards where there is some leaf scab and where there was rain to spread it. The trees were wet long enough for secondary scab infection on leaves that had no protection.

Red spider is reported as serious in some areas on beans, cucumbers and other vegetables.

Protection against first brood of European corn borer will be needed for another week.

The second generation of birch leaf miner is expected to appear soon.—C. J. Gilgut and O. C. Roberts.

Spittle Bug Attacks Georgia Bermuda Grass

ATHENS, GA.—A moderate infestation of the spittle bug on coastal bermuda in Burke County is reported. The bermuda grass is apparently dying from the feeding of this insect.

Moderate infestations of the tobacco flea beetle are reported in Tift County tobacco fields. Moderate to heavy infestations have also occurred in Irwin, Coffee, Bacon, Ware and Pierce Counties.

Japanese beetles are feeding on shade trees in Clayton and Hall Counties. The average infestation by the boll weevil in fields checked was 20%. The average number of bollworm eggs per 100 terminal buds was two and the average number of worms per 100 terminals was one. Light aphid infestations on cotton have occurred in Twiggs, Bleckley and Pulaski Counties. Spider mites have caused light damage on cotton in Irwin and Warren Counties.—W. C. Johnson.

Boll Weevil Threat In North Carolina

RALEIGH, N.C.—The boll weevil is a serious threat in many counties in North Carolina. Many Piedmont fields are showing high populations of weevils and high square counts are in evidence in many reports. Treatment of fields is just getting under way in central and northern areas with many reporting only one to two applications. First brood weevils were expected to appear about July 4 in the lower southeast areas. They will be at least a week later in appearing in the Piedmont and central areas. Large numbers are expected to appear in many fields and make it necessary for repeated applications during July at not over 5-day intervals.

Even though weevil populations appear high in some counties, with better weather conditions and with frequent applications growers can expect good yields. Very few bollworms have been reported. A few reports indicate localized mite infestations.—George D. Jones.

Leaf, Stem Rust Hit Midwest Wheat, Oats

MINNEAPOLIS — Leaf and stem rust infections are present on both wheat and oats in the Upper Midwest, according to the Rust Prevention Assn.

These presently light rust infections are the result of spores blown northward from infected fields in the South. The amount of rust which ultimately develops in the spring wheat area will depend on several factors. Weather conditions from now until harvest, the frequency of spore showers, as well as the number of rust spores and races carried into the Upper Midwest by southerly winds all are important.

Wheat leaf rust is reported as far north as Winnipeg, Canada, but wheat stem rust infections have not yet been found north of central South Dakota. Oat leaf (or crown) rust infections are present in northern South Dakota and central Minnesota. Oat stem rust has not been found north of southern South Dakota.

Some damage from leaf rust of wheat and crown rust of oats is probable in portions of Texas, Oklahoma, Kansas and Nebraska. Thus far, stem rust has damaged only occasional late maturing wheat fields in the Texas Panhandle, northern Oklahoma and portions of Kansas. Oat stem rust is light in these areas.

Large numbers of rust spores now being produced on the generally late crops of the south may be carried to the Upper Midwest by southerly winds. Normal maturity of cereals in Minnesota, North and South Dakota presently gives cereals the edge in the annual race between rust and crops, but prediction of the final outcome is not possible at this time.—Donald G. Fletcher.

Maryland Alfalfa Hurt By Potato Leafhopper

COLLEGE PARK, MD. — Potato leafhopper has caused injury to alfalfa at Fairland, Md., on field borders and in small areas cut at different times, allowing migration of insects from one to another. Grasshoppers are noticeable in all fields.

European corn borer infestations in sweet corn are building up on the eastern shore and in central Maryland. There is much variation between fields; some fields are reported with over 50% of the plants showing borer injury.

Sap beetle populations are building up. Southern cornstalk borer is causing whorl and stalk damage to field corn in Southern Maryland. Corn earworms are also cutting the whorls or buds.

European red mites are beginning to hurt apple foliage in some orchards in central Maryland. Peach trees in small plantings show injury to twig ends from oriental fruit moth. Raspberries show damage from two-spotted spider mite.

Leafhoppers are injuring potato vines in Montgomery County.

Japanese beetles are hurting roses, crab apples and other ornamentals in many gardens. Spider mites occur on boxwood, phlox and other plants. Lace bugs and mites are hurting azaleas. Thrips are blanching the leaves of gladiolus.—Theo. L. Bissell.

Grasshoppers Increase In Kansas Fields

MANHATTAN, KANSAS — The numbers of grasshoppers have increased in most areas during the past two weeks. A few of the lesser migratory grasshoppers now have wings but sprays applied now would prevent their laying eggs for the second generation this year.

There have been several reports of chinch bugs migrating into several rows of milo as well as adult bugs being found throughout milo fields. Early application of the chinch bug spray is much more important than applications of spray to wilted stalks in midsummer.

No spotted aphids were found in northwest Kansas counties during the past week. They can be found in the southern half of the state but have not become a serious problem.

Yellow plants, which may be due to leafhoppers feeding, have been found. Some fields in central Kansas have heavy populations of green clover worm. This green looper is usually not a pest and is normally destroyed when the field is mowed.

A report from Brown County indicates considerable damage to one-foot tall corn by white grubs.

The spiny larvae of the mourning cloak butterfly has been reported several times this spring defoliating Chinese elm. There may be another generation later this summer.

This year's harvest is similar to the one of 1948 when stored grain insects reached a peak in Kansas. Rain, down wheat, and late harvest which cause the cutting of too high moisture content wheat provide ideal conditions for the stored grain insects. Bin sanitation and the use of liquid or dry wheat protectants are needed to carry farm stored grain through this year.—David L. Matthew and Dell E. Gates.

Cotton Insects Active In Mississippi Fields

STATE COLLEGE, MISS.—Much improvement was noted in Mississippi crops condition during the past week. While conditions generally remained "spotty," many farmers were able to get in fields and clean the crops.

Cotton insects continued to increase with damage reported from both boll weevils and bollworms. Poisoning is becoming general.

In Lamar County an above average watermelon crop has begun market movement.

Both boll weevils and bollworms are extremely active in Lafayette County.

Insects in Tunica County are causing some concern with boll weevils and fleahoppers needing some "spot poisoning." A recent attack of European corn borers has caused serious damage to older corn.

Boll weevils and bollworms are in heavy infestation and farmers are poisoning for control in many other Mississippi counties.

Food Shortage Curbs Nebraska Corn Borers

LINCOLN, NEB.—Corn borers in Nebraska may be short of food for the next month. Most of the corn planted in Nebraska is too small to be attractive to the first brood of corn borers. Corn must be about 24 in. tall before the little borers can survive.

If the corn growth was at the right stage, the number that overwintered, although not extremely high could cause some trouble.

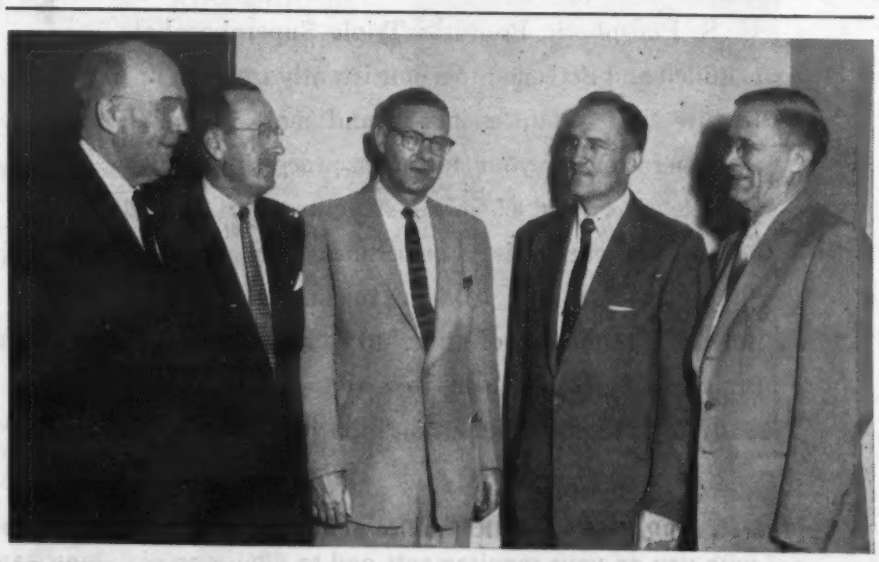
Corn borers prefer to deposit eggs on corn that is 36 in. or higher in June. Since only a few fields were far enough advanced to attract the first brood, the corn borers will likely turn to oats, weeds and other plants to support their population.

The second brood borers in late July and August might find corn to their liking, however it is impossible to predict the threat this early in the season.—Robert E. Roselle.

Mexican Bean Beetle Threat in Colorado

FORT COLLINS, COLO.—Mexican bean beetles have suddenly become busy in northern Colorado.

Field surveys indicate adult and egg laying activities of the beetle have increased considerably. In the June 18 report, observers had noted only adults in bean fields—no eggs or



AT NPFI LUNCHEON—Two prominent agriculturalists and the under secretary of agriculture are shown above visiting executive vice presidents of the National Plant Food Institute following a luncheon in Washington, D.C. recently. The Institute annually sponsors a luncheon for the officers and directors of the National Association County Agricultural Agents when the group meets in Washington. True D. Morse, under secretary of agriculture, was the speaker at this year's luncheon. Left to right in the photo are: Mr. Morse; Paul T. Truitt, Institute executive vice president; Dr. H. L. Ahlgren, chairman, Extension Committee on Organization and Policy, American Association of Land-Grant Colleges and State Universities and Director, Extension Service, University of Wisconsin; Dr. Russell Coleman, Institute executive vice president; and R. H. McDougall, president, NACAA.

larvae. Now, however, egg masses are numerous.

Sour cherries in Larimer County have suffered 70 to 80% damage from cherry curculio. Plantings of sour cherries growing in the neighborhood of chokecherries are more liable to infestation.

Pupation of the peach tree borer is under way in Larimer, Mesa and Delta Counties. This pest of peaches and cherries emerges earlier in Colorado than has been generally realized.

Bait traps in Larimer County indicate the seed corn maggot, sugar beet root maggot, western wheat stem maggot and spinach leaf miner continue to be active. Tomato psyllids are still being taken on matrimony vine, but in smaller volume than the previous week. On June 24 the count was 40 adults per 100 sweeps.

Heavy crawler activity of oyster shell scale on trees was reported in Larimer County.

Cotton in Arizona Receives Damage

PHOENIX, ARIZ.—Cotton insects are increasing in Arizona. The Lygus counts are going very high.

In Graham County counts near alfalfa fields run as high as 25 Lygus and cotton fleahoppers. The Lygus count is building up in Pinal County and the average is 10 adults and five nymphs per 100 sweeps. Fleahopper counts are also high in most areas. In the Eloy area, moderate to heavy infestations of thrips can still be found.

In Pima County Lygus counts are high in some fields. Some bollworms also are showing up. In Maricopa County Lygus populations have run as high as 120 per 100 sweeps. Fleahopper counts range from 10 to 100 east of Phoenix, the Laveen area, and to the southwest.

Scattered infestations of armyworms, loopers, bollworms, spider mites, cotton leaf perforators, stink bugs and cotton leaf rollers have also been reported. Fortunately, beneficial insect populations are high and these pests are still only a minor problem. —J. N. Roney.

Corn Borer Numbers Increase in Missouri

COLUMBIA, MO.—Over Missouri as a whole, corn borer numbers are higher than they have been for several years.

In the southern and central sections of the state, the borers are entering the stalks, which means it's too late to spray. In north Missouri, they are still feeding in the whorls.

Nearly every alfalfa field in Missouri is showing yellowing caused by leaf hoppers. In all probability, this damage will increase during the next several weeks.

A lot of corn leaf aphids are in both corn and grain sorghums. They are down in the whorl, feeding on the new growth. Fortunately, however, usually only a relatively small percentage of the plants are infested.

In some of the overflow land in the bootheel area, cutworms are taking out stands of corn and cotton. Rains and floods have packed the soil to the point where most of the worm damage is above the ground, which increases the possibilities of getting control by band spraying over the row. — Stirling Kyd and George W. Thomas.

ARKANSAS CHANGE

FAYETTEVILLE, ARK. — Dr. Lloyd O. Warren, Arkansas survey entomologist for the past two years, now is devoting full time to research work at the University of Arkansas College of Agriculture and Home Economics. William P. Boyer has succeeded him in the insect survey work.

FDA Sets Tolerance For Toxaphene in Fat Of Cattle, Sheep, Goats

WASHINGTON—Food & Drug Administration has announced a tolerance of 7 parts per million for Toxaphene in the fat of meat from cattle, sheep and goats.

Hercules Powder Co., producer of Toxaphene, said that this is the first tolerance set for the product in the fat of meat from cattle, and that it permits the feeding of beef cattle with corn forage from corn treated with Toxaphene for corn borer control. The tolerance also means that cattle, sheep and goats can be sprayed with Toxaphene for protection against certain livestock insect pests, Hercules said.

The new regulation states that the spraying of the animals or the feeding of the animals with Toxaphene treated forage should not take place during the four weeks before slaughter.

In a companion order FDA established a new tolerance of 7 ppm for residues of Toxaphene in or on each of the following raw agricultural commodities: cranberries, hazel nuts, hickory nuts, horseradish, parsnips, pecans, pimentoes, rutabagas and walnuts.

1956 Super Output Higher Than Year Earlier

WASHINGTON—Production of superphosphate and other phosphatic fertilizers in 1956 totaled 2,438,766 short tons, a gain from 2,272,495 short tons in 1955, the Bureau of the Census reported June 27. Shipments in 1956 amounted to 1,703,462 short tons, an increase from 1,467,116 in 1955.

The 1956 production included 1,468,360 tons of normal, 12,888 tons of enriched, 753,417 tons of concentrated, 6,729 tons of wet-base goods and 197,372 tons of other phosphatic fertilizers.

Louisiana Grade Hearing Scheduled

BATON ROUGE, LA.—The annual Louisiana Fertilizer Grade Conference will be held July 10 in the Court of Appeals Room of the State Capitol Building.

Topics to be considered at the morning meeting include "How Louisiana Could Profit from a More Modern Feed and Fertilizer Laboratory," Stanley Hackett, Dixie Fertilizer Co.; "Louisiana Agricultural Experiment Station Needs the Help of the Fertilizer Trade," John Mikell, assistant director, Agricultural Experiment Station; "Current Developments Affecting Fertilizer Control," Ernest A. Epps, Jr., head, Feed and Fertilizer Laboratory, and "The Interest of State Control Officials in the Welfare of the Fertilizer Trade," S. J. McRory, commissioner of agriculture.

Fertilizer recommendations for field, forage and horticultural crops will be reviewed by M. B. Sturgis, head of the agronomy department and Lloyd G. Jones, associate horticulturist. Millard S. Perkins, assistant commissioner of agriculture, will give a report on fertilizer sales in Louisiana during the 1956-57 season.

Vermont Tonnage

BURLINGTON, VT.—Vermont fertilizer sales in the fiscal year ended last June 30 totaled 24,158 tons, including 20,897 tons of mixed goods, according to the University of Vermont and State Agricultural College. In addition to this total, the Vermont Agricultural Stabilization and Conservation office handled 1,710 tons of 18% superphosphate, 13,074 tons of 20% superphosphate and 11,613 tons of 0-20-20 under the agricultural conservation program.

Winners Named in Georgia Grazing Contest

STATESBORO, GA.—Sam Neville, Bulloch County dairy farmer, has been named winner in the annual Georgia grazing system and feed production contest.

Mr. Neville's winning program is based on 232 acres of Coastal Bermuda grass and is supplemented with 60 acres of Starr millet, while 250 acres of oats furnish winter grazing on the 1,050-acre farm that also includes 525 acres of cropland.

County agents and farmers of the district will meet on the farm July 12, with members of the Georgia Plant Food Educational Society and extension service agronomists to see and hear about Mr. Neville's grazing setup.

T. B. McDowell, beef cattle producer from Dougherty County, was named runner-up, while Ernest Nunn, dairyman from Jackson County, was awarded third place in the state-wide contest.

R. E. Neidig Retires From Balfour, Guthrie

SAN FRANCISCO—The retirement, effective June 30, of Dr. R. E. Neidig, vice president in charge of the fertilizer division, has been announced by Balfour, Guthrie & Co., Ltd. He has been succeeded by H. E. Ferguson, who was appointed vice president effective July 1.

Italian Firm Lets Contract for Erection Of Fertilizer Plant

MILANO, ITALY—Societa Azienda Nationale Idrogenazione Combustibili of Milano has awarded a contract to Potasse & Engrais Chimiques to erect a 400-600 ton-a-day complex fertilizer plant. The installation will utilize the PEC carbonitric process which will produce a basic formula of 13-10-12.

The Chemical & Industrial Corp., Cincinnati, has exclusive rights to license the PEC process to users in the U.S. A plant of this type recently was completed for California Spray-Chemical Corp., Richmond, Cal., and it is now producing 15-15-15 and 22-22-0.

Zonolite Names New Sales Manager

CHICAGO — Robert P. Arnold has been named Terra-Lite sales manager for Zonolite Company, miners and manufacturers of vermiculite. Mr. Arnold, who joined the firm in September, 1951, will transfer from his home in Pittsburgh to Chicago, general sales headquarters for the firm. The product vermiculite is used as a soil conditioner and carrier for agricultural chemicals.

Mr. Arnold, 33, graduated from Duquesne University in Pittsburgh in 1950, and is a veteran of World War II, with service in the South Pacific. Prior to joining Zonolite Co., he was a sales representative for Western & Southern Insurance Company. He is married and the father of four children.

PEANUT FIELD DAY

LEWISTON, N.C. — The spring peanut field meet was held here recently at the Peanut Research Farm with A. D. Stuart, North Carolina extension agronomist, in charge of the program. Speakers included Clyde McSwain, superintendent of the farm, and Joe Sugg, executive secretary of the North Carolina Peanut Growers Assn. Discussions by personnel of the experiment station included peanut fertility by P. H. Reid, crop stands by R. P. Moore, entomology by J. F. Dogger and plant pathology by William E. Cooper. A chemical weed control session was conducted by W. G. Westmoreland and R. P. Upchurch, State College staffmen.

17-Year Cicada Makes Reappearance In Massachusetts

BOSTON—This is the year of the Cicada on Cape Cod, where after 17 years underground in Cape earth, the Cicada, commonly called the 17-year locust, emerges as a winged insect. Millions of the insects are filling the air from Plymouth to Barnstable.

Dr. Roger Morse of the Waltham, Mass. Field Station points out that the only observable damage done by cicadas is when the female's ovipositor, a sharp two-edged affair, splits twigs in which to lay eggs. Hard pressed Cape farmers, the experts say, need not worry about the cicada's effect upon crops. They've done most of their feeding as larvae, in the ground, and aren't especially destructive.

The cicada, "cicada, not locust," stressed Dr. William Brown of Harvard's Museum of Comparative Zoology, lives out his last high-flying few weeks amid danger. While the final rush to lay its eggs is on, the cicada is subject to attack by an enemy aptly called the Cicada Killer. This is a large wasp, only about the size of the cicada itself (about 1½ inches long), and it waits in trees or on roofs to glide down, strike the cicada in midair and bear it to earth.

North America has several major broods of cicadas, which reappear in the same areas each 17 years. One in Connecticut, seems to be dying out, according to Dr. Brown. Another in the Chicago area has a different cycle from the Cape ones coming a year earlier. Pennsylvania has a brood too. When the cicada larvae are hatched in the twigs, they tumble to earth and begin burrowing in the ground. They live on roots below the frost-line. Those which will tumble to the ground from Cape Cod bushes and trees will move about underground and shed their skin several times before emerging again in 1974.

Massachusetts entomologists point out that American cicadas are maligned when they are compared to "locusts." In the Near East and some parts of Europe locusts strip trees and crops, and are fought with flame throwers and cropdusting planes. They represent a literal threat of life.

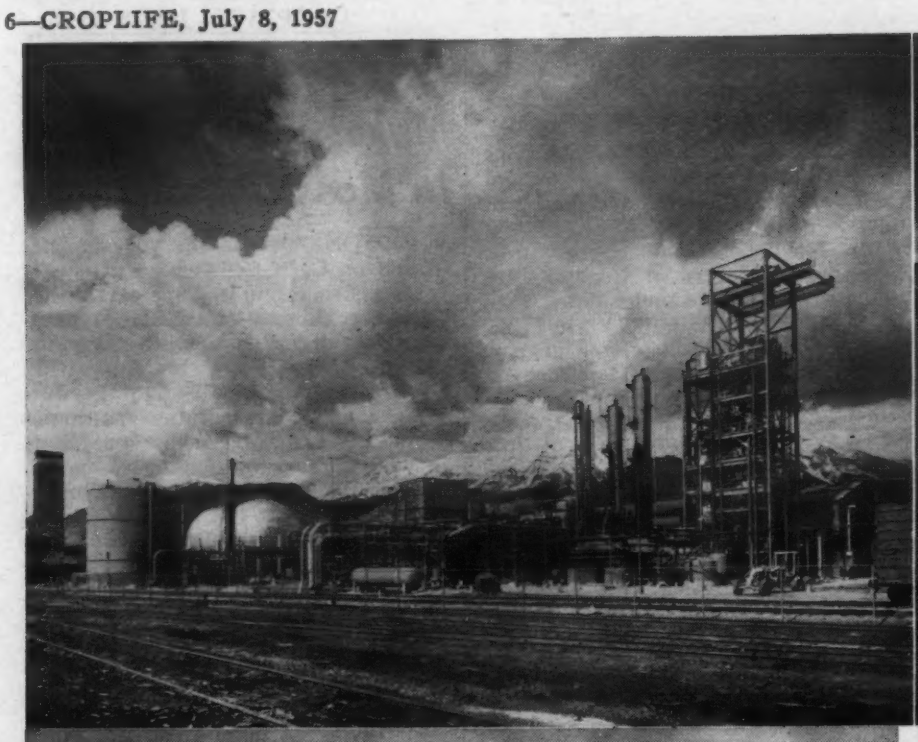
The Cape brood of cicadas stays within a given area and in all probability are descended from the same brood that annoyed the Pilgrims in the early 1600s. The cicadas have a perfectly outlined "W" near the wingtip. Some persons have held that when the cicada appears with "W" on its wings, this means war. Some say the cicada's wings were marked with "P" for peace, in 1923. Dr. Brown thinks the "W" is simply a strengthening of the wing veins, and has no recollection of seeing the "P."

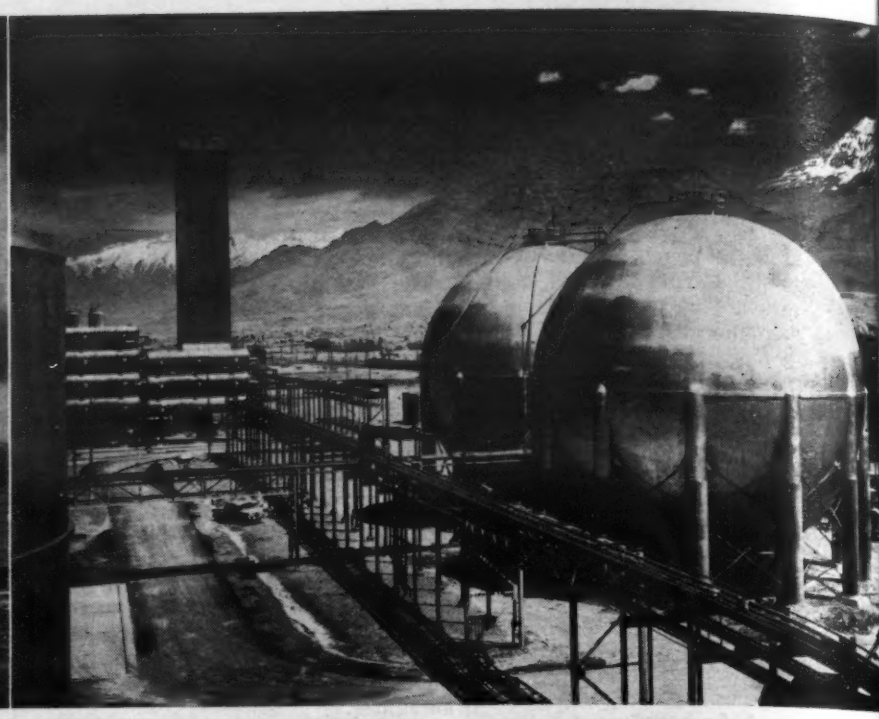
Irrigation Increases Corn Yield on Indiana Farm

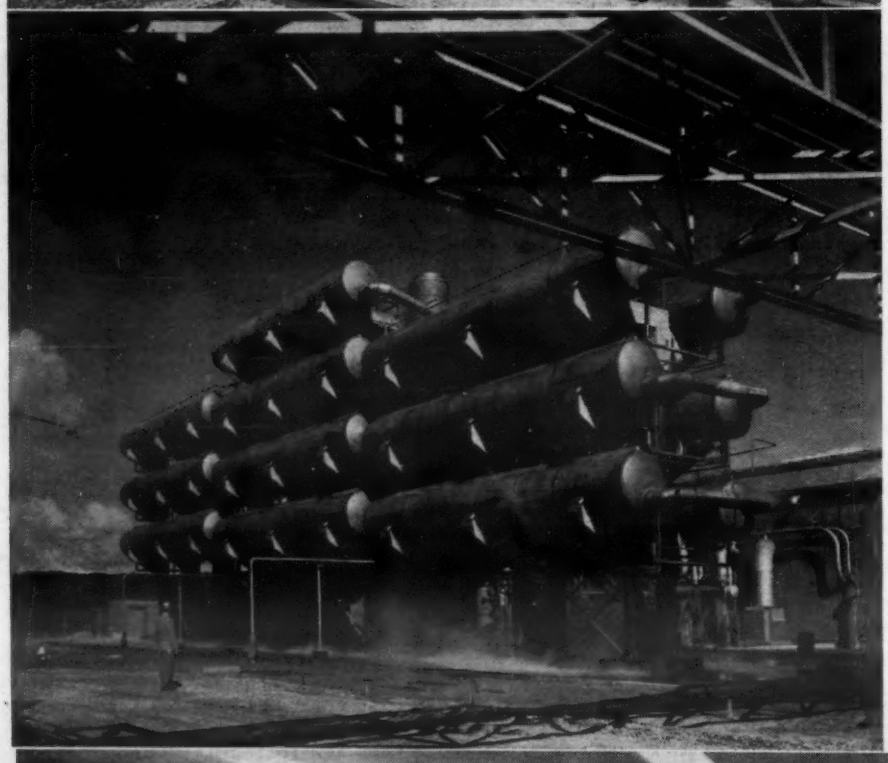
LAFAYETTE, IND.—Lee Maxwell, who farms in the Tippecanoe River Valley in Carroll County, Ind., has pushed corn yields well above average in the past three years with irrigation.

In the past three years, Mr. Maxwell has harvested an average of 120 bu. per acre from 100-150 acres of irrigated corn — well above yields prior to irrigation. His irrigation unit is powered by a 185 horsepower gasoline engine and pumps 1,000 gallons per minute. He figures the cost of irrigation at about $25 per acre per year. Mr. Maxwell has tested his soil to determine plant food requirements and has added additional fertilizer to obtain the high yields irrigation can give.

"Past experience indicates that I need to apply more water each application. Best results come with three inches of water per application rather than one or two," he says.







70,000-TONS-A-YEAR INSTALLATION

U.S. Steel Corp. Holds Official Opening of Utah Nitrogen Plant

PROVO, UTAH—Industrial figures of the nation assembled here recently to join with civic and business leaders for Utah for the official opening of the nitrogen plant at U.S. Steel Corp.'s Geneva Works near here .

State and local officials, church and industrial leaders were among the 300 guests who joined with Clifford F. Hood, U.S. Steel president, and Robert C. Tyson, finance committee chairman, at a luncheon and tour of the new installation.

William Rodgers, vice president-sales, and George E. Kopetz, vice president-production, of the Blaw-Knox Co., the firm whose Chemical Plants Division built the plant, were present. Other U.S. Steel officials present included three executive vice presidents, Harvey B. Jordan, operations; Malcolm W. Reed, engineering and raw materials; and George W. Rooney, accounting; Bennett S. Chapple, Jr., assistant executive vice president-commercial, and Charles W. Baldwin, general manager, Coal Chemical Sales Division.

Official hosts for the opening were Leslie B. Worthington, president of Columbia-Geneva Steel Division, Lawrence F. Black, general superintendent of Geneva Works, and members of their staffs. The new facility is a part of the coke oven division of Geneva Works.

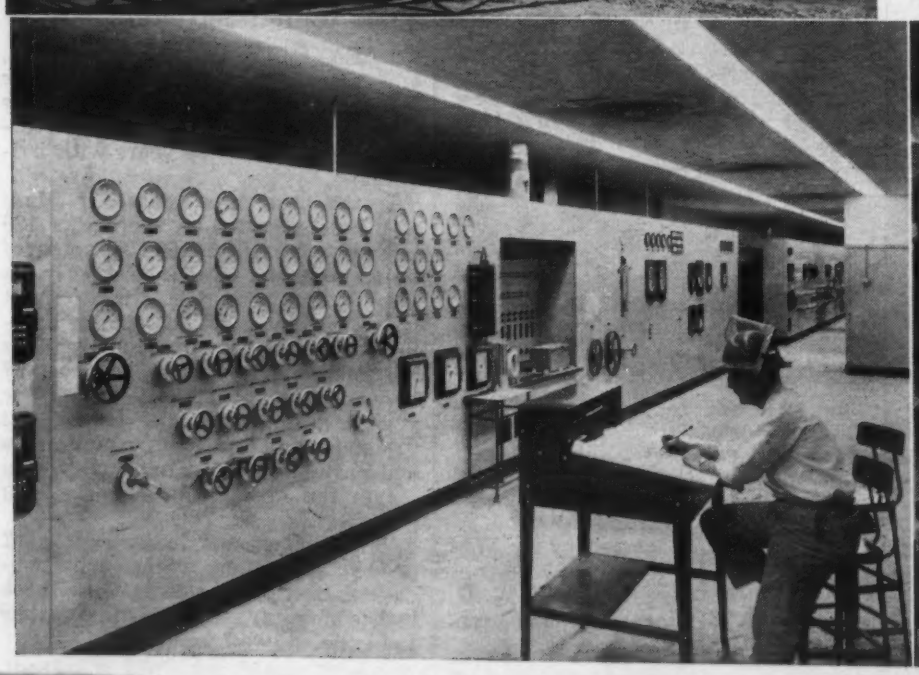
The installation utilizes several Montecatini processes in manufacturing anhydrous ammonia and in producing other nitrogen products from coke oven gas. The air separation and gas separation units were furnished by the German-Linde Co.

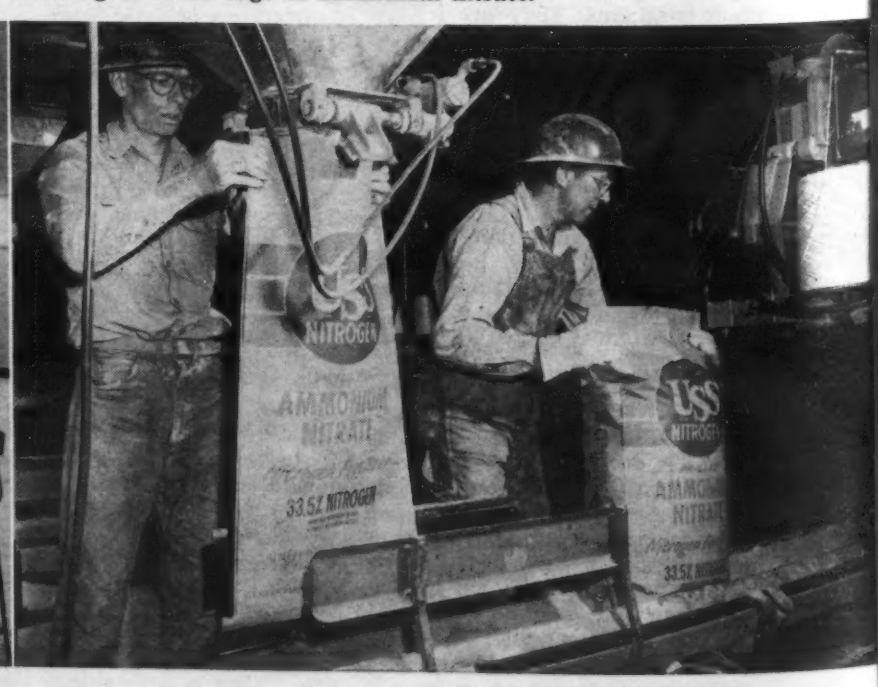
The official opening of the plant follows almost three years to the day, the first announcement by Mr. Hood that U.S. Steel was making a study of the possible extraction of ammonia from coke oven gas. A few months later, Mr. Chapple and the late Alden G. Roach, president of Columbia-Geneva Steel Division, announced

NEW U.S. STEEL PLANT—Here are scenes at the nitrogen plant of U.S. Steel Corp.'s Geneva Works near Provo, Utah. Upper right shows the two 2,100-ton hortonspheres and the 13-story prilling tower, which is the tallest structure in Utah County. Upper left shows a general view of the plant, which went on stream early this year. It has a capacity of more than 70,000 tons a year of ammonia, nitric acid and ammonium nitrate.

At left, second from the top, anhydrous ammonia is flowing into tank cars from the hortonspheres. Photo at left, third from top, shows a bank of 20 stainless steel cascade absorbers, part of the nitric acid processing section of the plant. Nitrogen dioxide gas is bubbled up through water in each of the absorbers to yield 53% nitric acid.

At lower left is the master control room. A final step in the production of fertilizer is shown at lower right. Here workmen supervise the filling and stitching of 80-lb. bags of ammonium nitrate.





ans for construction of the plant at eneva. The Blaw-Knox Co. Chemi- l Plants Division of Pittsburgh han- ed the design engineering and con- ruction. Major subcontractors on e job included Chemical and In- strial Corp. of Cincinnati and Foley ectric Co. of Salt Lake City.

L. G. Bywater, superintendent of e new facility, led visitors through e plant at a press and technical eview of the installation. Guests w miles of complicated piping, huge mpressors, some driven by 6,000 rsepower motors, cold boxes about stories in height, each containing ore than 50 carloads of insulation here temperatures reach as low as 00° F. below zero, and 750-ton ca- city refrigerating equipment, ough to air condition 1,400 three- droom homes.

The existing coal chemical recovery ant which has been operating at eneva Works since 1944, produces mmonium sulfate. In addition, the ant also makes toluene, benzene, al tar and other chemicals from ke oven gas.

Sales of all U.S. Steel chemicals e handled by the Coal Chemical les Division of the corporation. The western states sales office, headed Frank E. Adams, western sales anager, is located in the Kearns dg., in Salt Lake City.

ominations Asked or Hoblitzelle Award

RENNER, TEXAS—The scientist ho has made the outstanding re- earch contribution to American agri- ulture in the last four years will re- eive the "Hoblitzelle National Award the Agricultural Sciences" in ecognition of his work. The award, onsisting of $5,000 and a gold me- allion, will be presented May 21, 958, at the annual field day and wards dinner of Texas Research oundation at Renner.

Committees representing each of e states, Alaska, Puerto Rico and awaii are now at work reviewing e whole field of agricultural re- earch to make nominations for the oblitzelle Award. Individuals, roups and agencies are invited to ontact their regional committees and make nominations.

This will be the fourth time the ational scientific award has been resented. It was first given in 1951. he purpose of the Hoblitzelle Award to encourage scientific research in griculture and to provide suitab'e ecognition of the results of this re- earch, Fred M. Shaw, secretary of he Hoblitzelle Awards, said.

"The contribution meriting this ward should have been published in he four-year period of Jan. 1, 1953 hrough Dec. 31, 1956," Mr. Shaw aid. "It is not intended to exclude esearch that my have been initiated arlier, but the results must have een published in these four years."

V. H. Hair Announces Retirement from Armour

ATLANTA—V. H. Hair, general redit manager of Armour Fertilizer Works, Atlanta, and assistant treas- rer of Armour and Co., retired on June 15, 1957 after almost 45 years' ervice with Armour. James H. Char- es, formerly assistant general credit manager, has been announced as Mr. Hair's successor.

Mr. Hair began his career with Armour Sept. 30, 1912. In 1934 he was made assistant general credit manager of Armour Fertilizer Works, and in 1951 was appointed general credit manager of the fertilizer works and assistant treasurer of Armour and Co.

Mr. Charles has been with Armour since April 30, 1914. In 1951 he was promoted from credit manager of the Chicago Heights division to assistant general credit manager in the At- anta general office.

Judges Named for Green Pastures Contest

BOSTON — George E. Whitham, county agricultural agent leader at the University of Connecticut, will head a six-man judging team for the 10th annual New England Green Pastures Contest, Aug. 19-Sept. 1.

The aim of the Green Pastures Contest is the encouragement of a more prosperous dairy industry in New England, especially through the growing and use of quality forage for pastures, hay and silage and through the economic use and management of all farm resources.

Also serving on the judging committee are Raymond Keene, an Auburn, Maine, farmer; Paul J. Fenton, Concord, N.H., county agent for Merrimack County, New Hampshire; William W. Stone, Woodstock, Vt., county agent for Windsor County, Vermont; John M. Zak, assistant professor of agronomy, University of Massachusetts, and George E. Bond, extension service planning specialist, University of Rhode Island. The judges will visit the three farms judged to be maintaining outstanding forage programs in each state in state-wide contests during their tour of New England.

This is how they placed in last year's New England-wide contest: Hugh C. Briggs & Son, Turner, Maine, first; Roe and Richard MacDanolds, North Haverhill, N.H., second; David Batchelder, Stowe, Vt., third; Manuel J. Bettencourt & Sons, South Westport, Mass., fourth; Ernest M. Loew, Hampton, Conn., fifth; and Manchester Brothers, Warren, R.I., sixth.

Florida Tonnage

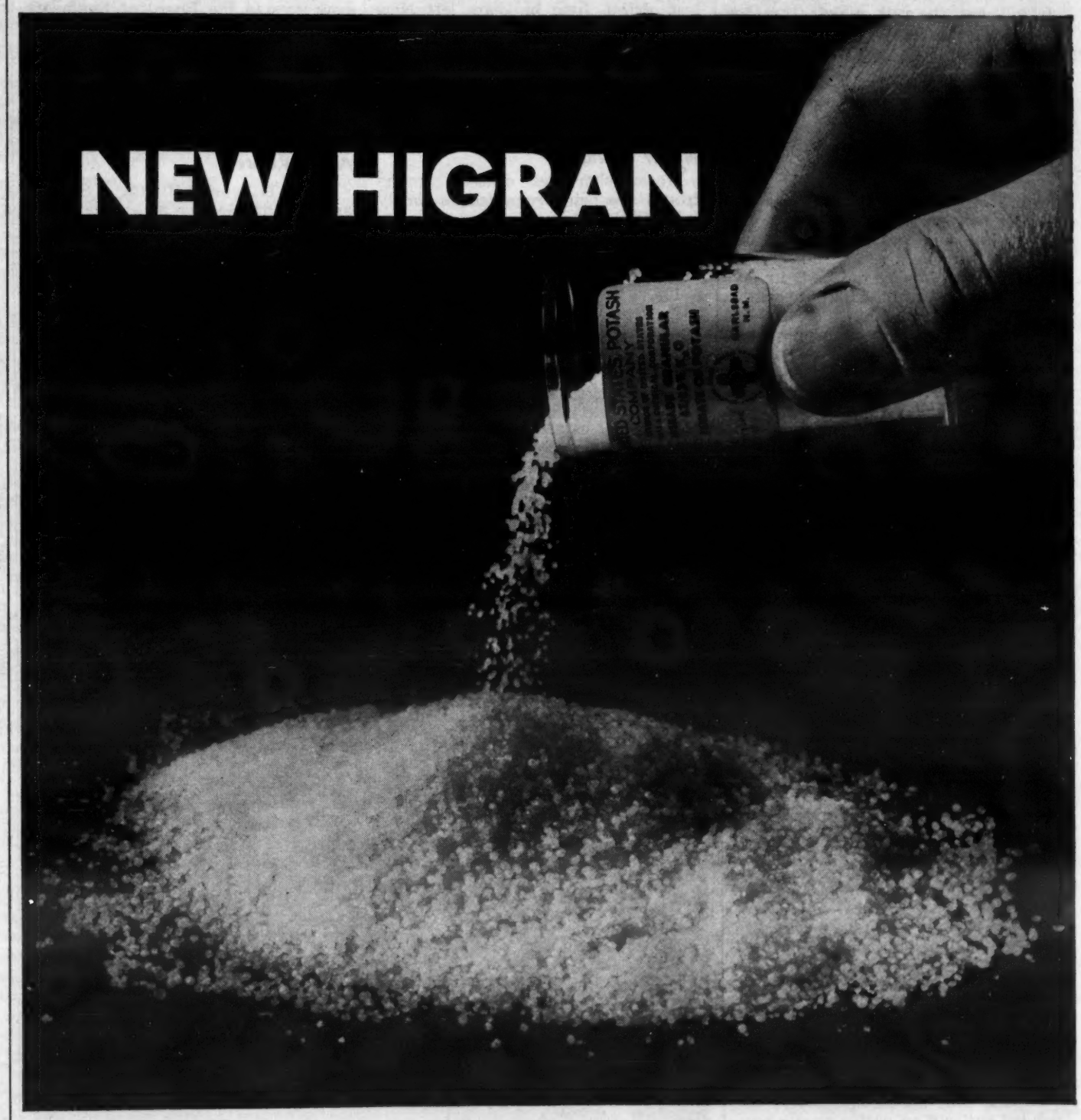
TALLAHASSEE, FLA.—Fertilizer consumption in Florida during May totaled 199,598 tons, according to the Florida Department of Agriculture. This included 143,254 tons of mixed goods and 56,344 tons of materials.

Fertilizer Employment Drops in South Carolina

COLUMBIA, S.C.—Employment in the fertilizer industry in South Carolina, at approximately 1,200 in May, was 14.3% below that of one year earlier, the South Carolina Employment Security Commission has reported. The decline from April, 1957, was 33.3%, a drop of about 600 workers.

SALES MANAGER HONORED

PORTLAND, ORE.—R. H. Wyman, district sales manager, the Nopco Chemical Co. agricultural department, was recently honored at a party for long-service employees of the firm. Mr. Wyman celebrated his 25th year with Nopco which this year is celebrating its 50th year of business. He received a gold watch from Ralph Wechsler, Nopco president.



USP'S NEW HIGRADE GRANULAR SPECIALLY SIZED FOR THE MANUFACTURE OF MODERN FERTILIZERS

USP announces the FIRST Higrade Granular muriate of potash designed specifically for the manufacture of today's modern fertilizers. Its perfect whiteness attests to its purity—the highest now available in granular agricultural muriate of potash. Non-caking and free-flowing throughout, USP's new Higrade Granular potash contains 62/63% K_2O! A regular supply of this important new potash product is immediately available from the U.S. Potash Co.

USP also offers Higrade muriate of potash—62/63% K_2O and Granular muriate of potash—60% K_2O—both free-flowing and non-caking.

UNITED STATES POTASH COMPANY
DIVISION OF UNITED STATES BORAX & CHEMICAL CORPORATION
50 Rockefeller Plaza, New York 20, New York
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NEW ENGLAND NEWS NOTES

Drouth Brings Water Restrictions, Rain Makers, Protests From Market Gardeners

The drouth situation is causing consternation in Massachusetts and Rhode Island where there has been no appreciable rain in a month. Approval for the hiring of a professional rain maker in an effort to end Rhode Island's damaging drouth was given June 26 by the attorney general's office.

John L. Rego, state director of agriculture, said Gov. Dennis J. Roberts had given him full authority to hire the rain maker, subject to legal precautions. Dr. Wallace E. Howell of Lexington, Mass., who developed a rain making device for General Electric and who had been approached by Mr. Rego, said he would be ready to go to work within 48 hours. He uses a method of intensive cloud seeding with silver iodide.

It was pointed out that if Rhode Island uses the rain maker, some of the artifically induced rain might be expected to spill over southeastern Massachusetts, the hardest hit part of the state.

Restrictions Protested

In Massachusetts, restrictions placed on the use of water during the present drouth have brought a flood of protests from market gardeners. Benjamin Dargoonian, of Dargoonian Brothers, members of the Boston Market Gardeners Assn., said "farming and the raising of food, in our opinion, is just as much an important industry as the making of electronics products, textiles or chemicals." He appealed in behalf of 17 of his fellow market gardeners in the Andover area after the Andover Public Works Department ruled that water for the irrigating of crops could be used only between the hours of 6 p.m. and midnight.

Lodging their formal protest with L. Roy Hawes, Massachusetts commissioner of agriculture, Mr. Dargoonian said that the farmers pay for the water they use, just as do the factories, which he said "are using hundreds of thousands of gallons a day."

"We'd be foolish to waste the water," he said. "But, this restriction of its use to the six hours in the evening works a particular hardship on us. Extra help is hard to get, and that's the time when we must haul our strawberries, carrots, beets, iceberg lettuce and other produce to the Boston market."

In the meantime, while the continued drouth is having its effect and becomes more and more serious every day that it doesn't rain, from a dollars and cents standpoint some market gardeners are ahead because of it. The two most expensive factors in establishing retail prices of fresh produce today are labor and distribution costs. With these remaining fairly constant at a high level, the added factor of a scarcity of produce brought about by the continued dry spell tends to keep growers' prices up too.

At one time here householders depended entirely on native grown produce and lower quality resulting from drouth conditions was taken as a matter of course about which little could be done. Lower quality often meant lower prices. With faster transportation methods bringing quality products of irrigated farms of the South and West into closer competition with native fruits and vegetables, many New England market gardeners turned to irrigation methods.

Dairy farms are feeling the serious effect of the dry weather, but "poultry farmers don't seem to be hit as hard by the continuing drouth," Louis A. Webster, director of the division of markets, Massachusetts Department of Agriculture, reported. Quoting market prices for fresh produce, he said it was his opinion that the average market gardener is doing fairly well for himself from a price standpoint.

"Competition from outside growers is very keen. But the cost of distribution is so great compared with the portion the farmer receives for his produce that today's drouth factor—so far as it affects the consumer—grows less and less each year. More and more market gardeners are producing a greater abundance of quality produce on less acreage through new and improved methods of cultivation, fertilizing, weed elimination and irrigation—and consumers are benefiting thereby," he said.

The crop damaging drouth has been worsened with high winds which dried the crops much faster and also interfered with irrigation. The hottest, driest June in years left New England farms parched. The Massachusetts farming industry has been losing an estimated $250,000 a day. June was the warmest in New England since 1949 and the driest in four years.

Water Warning

Water shortages caused by the drouth are being regarded as timely warnings in Massachusetts where several cities and towns face a serious water crisis in the years ahead unless some farsighted planning is done now. A 128-page report filed by the Legislative Research Council sketches the probable conditions Massachusetts will face in a few decades.

By the year 2,000, only 43 years away, it was estimated that 830 persons will be living on every square mile of real estate in Massachusetts instead of the average of 598 counted in 1950. Massachusetts is the third most heavily populated state in the U.S. ranking behind Rhode Island and New Jersey. The report said water consumption is expected to nearly double in the next four decades in Massachusetts.

Corn Borer Warning

New England corn growers are being warned by state agriculture departments to be on the watch for European corn borers and to spray their corn now. They have been told to look carefully on the underside of the corn leaves where they may see masses of 15 to 20 eggs. While these eggs are hatching or immediately afterwards, spraying is advised for a quick kill.

Agricultural Chief

Charles H. McNamara, Stoughton, Mass. farmer, has been nominated as state commissioner of agriculture by Gov. Foster Furcolo. He will succeed L. Roy Hawes, who has been serving as a holdover appointee since his term expired. Mr. McNamara is a graduate of the Massachusetts Agricultural College (now the University of Massachusetts). He has been a farmer since 1926.

Flood Control

The Army division engineer at Boston has recommended construction of a $4,255,000 flood-control project in the lower Blackstone River basin for protection of Woonsocket, Rhode Island. The recommendation, which now goes to the Board of Engineers for Rivers and Harbors for possible submission to Congress, calls for a local protection project on the Blackstone, Mill, and Peters Rivers, in the Social district, Hamlet district, and the Bernon Dam area of Woonsocket.

Agent Retires

After 11 years with the U.S. Fish and Wildlife Service as assistant district agent, the retirement of Carl B. Henry, Westboro, Mass., has been announced. Mr. Henry helped develop outstanding rodent control programs in cooperation with agencies in Massachusetts, Connecticut and Rhode Island. Among his achievements was the development of an improved method for controlling destructive mice in orchards.

Conservationist Named

Dr. Benjamin Isgur, Northampton, Mass., deputy state conservationist with the Massachusetts Soil Conservation Service at Amherst since 1955, has been named state conservationist, succeeding Dr. Arthur B. Beaumont, retired. As state conservationist, he will direct the soil and water conservation program of the SCS and the USDA Watershed Protection and Flood Prevention activities in Massachusetts.

SOIL FUMIGATION—Effect of soil fumigation on citrus growth is illustrated by the two lemon trees being examined by agricultural experts. Both trees are the same age and were planted at the same time. Before planting, the soil in which the tree at the right was set out was fumigated with Vapam, the soil fumigant developed by Stauffer Chemical Co. and known chemically as sodium methyl dithiocarbamate. The other tree was planted alongside, but in untreated soil. Appraising the difference in the tree growth and health are four of the specialists who have been conducting the citrus experimental program in Riverside County, California. From left to right are: James Cleveland, Campbell and Sloop Ranch; Marvin Miller, farm adviser, Riverside County; Dr. Richard C. Baines, plant nematologist, and Thomas A. DeWolfe, department of plant pathology, Citrus Experiment Station, University of California.

POTASH STATEMENT

(Continued from page 1)

increased in the past 20 years, contrary to the general rise in most other materials.

"Fred Coope, president of the Potash Company of America and spokesman for the resigning member-companies, said the move was taken because the proposed dues were extremely inequitable . . . for the great majority of potash companies who have for years supported the American Potash Institute . . . for a program of research, education and promotion which benefits the entire fertilizer industry.

"The potash companies affected were American Potash & Chemical Corp., Duval Sulphur & Potash Co., National Potash Co., Potash Company of America, Southwest Potash Corp., and United States Potash Division of United States Borax & Chemical Corp. Only one major potash producer has not been a member of API.

" 'We were already deeply committed to the expense of the American Potash Institute,' Mr. Coope said 'and we concluded we could not bear the additional burden of this NPFI program.'

"Despite their resignation, the potash manufacturers endorse the fundamentals and principles of the NPFI program. The companies offered to continue their present contributions to the NPFI even though they have resigned.

"A representative of one of the resigning companies said the 1956-57 budget for the Potash Institute was $611,000, while the total budget for NPFI was $530,845 for the same period. This is in spite of the fact which many people do not realize that the potash producers form a very minor segment of the fertilizer industry. In the NPFI 1956-57 budget, based on the same levy on net sales for all, potash products were less than 7% of the total. Taking this situation into consideration, the disparity between Potash Institute member contributions and that of others to educational programs becomes highly inequitable. Financial support for the Potash Institute program has come from assessments of from one to two percent of each member-company's annual gross sales.

"An important part of the API program has been the financing of research projects in more than 40 different states and provinces in the United States and Canada to provide both general and regional information on correct use of potash and other fertilizer materials. In addition, the API has conducted a widespread educational campaign through advertising, publicity and field representatives to further the program, and has had the continued and active cooperation of federal and state departments of agriculture since its organization.

"Regional representatives for the API engaged in their field research programs include E. T. York in the Northeast area; J. Fielding Reed, C. W. Summerour, N. D. Morgan and E. H. Bailey in the South; Werner L. Nelson, H. L. Garrard and G. A. Wickstrom in the Midwest; M. E. McCollam, Forest S. Fullmer and Grant Brau in the Pacific Coast area and R. P. Pennington in Canada. District offices are maintained in Atlanta, Ga.; San Jose, Cal.; Lafayette, Ind.; Hamilton, Ontario, with national headquarters in Washington, D.C."

MOVES OFFICE

NEW YORK—U.S. Potash Co., division of U.S. Borax & Chemical Corp. has announced the removal of its office to 50 Rockefeller Plaza in New York. The telephone number is JUdson 2-6262.

By RAYMOND ROSSON
County Agent, Washington County, Tenn.

AGRICULTURAL BEATITUDES

Blessed are we who have a business in an area of fertile fields.

Blessed are they that mourn over low yields for they shall be comforted to know it wasn't the land's fault, but theirs.

Blessed are they that are meek, but will work, seek information, and plan, for theirs will be a full life.

Blessed are they which do hunger and thirst after knowledge, for they shall inherit the better land.

Blessed are the charitable for they will be lenient with their fields and fertilize.

Blessed are they who plant pure seed, for they shall see the Maker's handiwork in the harvest.

Blessed are they that make peace with the soil, for they shall be called children of God's land.

Blessed are they which are persecuted for being progressive, for theirs is the reward of good homes and happy youngsters.

Blessed are ye when non-progressives shall criticize and say, "Let good enough alone."

Rejoice and be exceedingly glad, for great is your reward in your community, for so criticized were they, the progressives, who were before you.

Agriculture preparest a table for cities that are set on hills; and, may well informed stewards recognize the basic values of good land and inhabit it.

Fertilizer Conference Planned for Sept. 25

WASHINGTON—The annual New England Fertilizer Conference conducted under the auspices of the National Plant Food Institute, will be held at the Bald Peak Colony Club, Melvin Village, N.H., Sept. 25, Dr. Russell Coleman, executive vice president of the Institute, has announced.

The conference which usually brings together representatives of the New England fertilizer industry and New England colleges of agriculture, will be open to members of the Institute and invited guests. Registration will begin on the evening of Sept. 24 and sessions will begin at 10:00 a.m., Sept. 25, concluding at approximately 3:00 p.m.

The sessions will be built around the factors which influence New England farmers' fertilizer-using practices. The basis for the discussion will be a study on this subject now being conducted by National Analysts, Inc., of Philadelphia for the Institute.

Members of the industry planning to attend should make their reservations with the Bald Peak Colony Club, stating their company affiliation in the reservation request, Dr. Coleman said.

Fundamental Records for Small Marketers

By Fred G. Harris
Fred G. Harris Company, Consultants for Small Business, Arlington, Virginia

SUMMARY

Many people starting in business wonder what records they ought to keep. They want to operate effectively, but they can't afford unnecessary bookkeeping. Likewise, established businessmen who see trouble at hand because of too few records often wonder where to begin in setting things right for the future. To help such owners and managers of small firms, the following material is presented. It deals in A B C's intentionally. Those who want advanced information would do well to study a comprehensive textbook. Many good ones are available. Those who want special techniques to meet unusual situations should consult a qualified accountant.

As a practical matter, there are two main reasons for keeping records: Tax purposes and management purposes. Income and other tax laws require that certain basic records be kept, from which to supply the federal government and various state or other agencies with a reliable statement of the firm's operations. Records for internal management control are very important, too, but are often neglected. Adequate records for good management usually will qualify for tax requirements, also.

Broadly speaking, the two most important business figures are **net worth** and **profits.** The records you keep should be at least sufficient to produce both these figures. In this connection, many suppliers have pretested recordkeeping systems available for customers. Most major oil companies, for example, have specialized forms for their dealers. Likewise, drug supply and grocery supply firms can often provide their retail outlets with individualized accounting aids. Local stationery stores also sometimes carry various helpful recordkeeping forms and ledgers.

Whether you use a pre-arranged system or one you design yourself, a good starting point is a list of what you own and what you owe. From the totals of these items, you can figure out how much your concern is worth.

Figuring Your Net Worth

Net worth is the total value of your business in dollars and cents, at any particular moment. Here is how to figure it:

ASSETS (what you own; for example, cash on hand, cash in bank, merchandise, accounts receivable, equipment, and business property)
less LIABILITIES (what you owe; for example, accounts payable, taxes, and notes payable)
equals NET WORTH

To verify that figure, the following alternative method may be used:

NET WORTH AT BEGINNING OF PERIOD
plus ADDITIONAL CAPITAL (money, value of equipment, and so on, invested in the business during the period)
plus NET PROFIT FOR THE PERIOD (or less any loss)
less WITHDRAWALS (capital or for personal salary and the like)
equals NET WORTH AT END OF PERIOD

If you are keeping your records correctly and all the items of your business dealings have been accounted for, the "calculated" figure will be the same as the "actual" net worth obtained by the first method.

An example of a simple balance sheet from fundamental records is:

Assets:		
Cash on hand	$ 200.00	
Cash in bank	4,000.00	
Merchandise inventory	19,500.00	
Accounts receivable	1,100.00	
Equipment	2,700.00	
Total assets	$27,500.00	$27,500.00
Liabilities:		
Accounts payable	$ 4,000.00	
Payroll taxes	105.00	
Notes payable	2,000.00	
Total liabilities	$ 6,105.00	6,105.00
Net worth		$21,395.00

Figuring Your Profit

Net Profit is the most common means for measuring the results of business operations. Here are the figures needed to determine your net profit for any given period of time:

SALES (or Gross Income)
less COST OF SALES* (Amount of goods gone-from-inventory where merchandise is purchased and resold)
equals GROSS PROFIT
less EXPENSES
equals NET PROFIT**

* In businesses where merchandise inventory is handled, cost of sales is obtained by taking the opening inventory, plus purchases for the period,

(Continued on page 14)

SHOP TALK

OVER THE COUNTER

By Emmet J. Hoffman
Croplife Marketing Editor

Retailers have found that a well organized merchandise display can increase sales 25% and more compared with an untidy, disorganized display that reflects a careless attitude of the merchant.

A little time spent in planning window and in-store displays, set up against a background that ties together the entire selling area, will pay off in extra profits. A little paint goes a long way in a store and it is always a puzzle trying to understand why so many retailers thoughtlessly try to economize on an inexpensive item like paint which can do so much to brighten and unify their sales displays and sales room.

The effectiveness of a good display is greatly reduced when it is backgrounded against a wall or floor that is woefully crying for color or cheerful, inviting covering.

Display builders who are leaders in their field have agreed on certain check points which they follow to make large and small displays effective. It's easy for the farm chemical dealer to use these same check points to ascertain whether his window and in-store displays are doing as good a job as they should. Here are the suggested points —remembering that they can apply to both window and in-store displays:

Is the display properly lighted? Have lights been placed or focused so as to show clearly the high quality of the merchandise being displayed?

Has any opportunity to use dramatic lighting been overlooked in the display?

Does the background give atmosphere to the setting of the window or store display? Has the background been so constructed to serve as a foil for the merchandise being featured rather than detracting from it?

Are background colors simple, easy, neutral and subdued in color so that the merchandise is thrown into prominent relief?

Is every part of the display clean? Have windows been washed both inside and out? Has the ceiling been cleaned? Are lights themselves freshly cleaned?

Were the various lights in the window all checked before the display was started? Is every globe performing at top peak so that there are no shadow spots where there should be light?

Does the window and display appear crowded so that it will be difficult for the viewer to focus his or her attention on the featured merchandise?

Is the display so constructed that it will be a "stopper," i.e., so that there is something therein which will attract the attention of every passer-by and make most of them stop and look at the merchandise on display?

Is the display itself simple and direct? Complicated or tricky displays often defeat their own purpose. The main purpose of every display is not to amuse the onlookers but to sell merchandise.

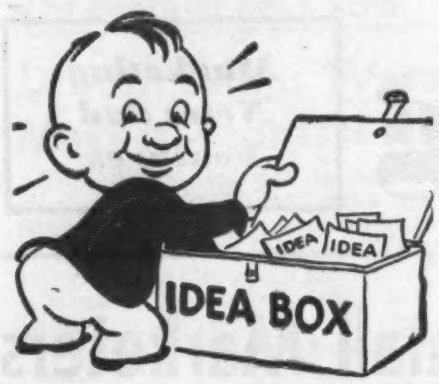
Is there a proper balance in the display in order that it may be most effective? Are shapes and objects grouped around the center in such a way as to achieve maximum attraction value?

Has the merchandise been selected in order that the items will have the greatest possible appeal to prospective customers?

Are the merchandise and the background in harmony so that there is no possibility of clash between these two important points?

Have harmonizing colors been selected or do they clash? Color harmony is an absolute must in displays. Color harmony should be checked be-

(Continued on page 11)



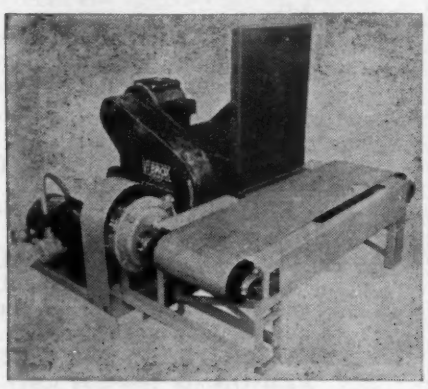
What's New...

In Products, Services, Literature

You will find it simple to obtain additional information about the new products, new services and new literature described in this department. Here's all you have to do: (1) Clip out the entire coupon and return address card in the lower outside corner of this page. (2) Circle the number of the item on which you desire more information. Fill in your name, your company's name and your address. (3) Fold the clip-out over double, with the return address portion on the outside. (4) Fasten the two edges together with a staple, cellophane tape or glue, whichever is handiest. (5) Drop in any mail box. That's all you do. We'll pay the postage. You can, of course, use your own envelope or paste the coupon on the back of a government postcard if you prefer.

No. 5732—Jack Belt Conveyor

Non-stop production and automatic coordination of a vibrating bag packer with a sewing machine are claimed for a jack belt conveyor developed by the Richardson Scale Co. The new conveyor assures that any temporary interruption of the sewing process will not bring bag-packing to a standstill, it is claimed. The conveyor is located beneath an automatic scale with the sewing machine conveyor position in line with it. In operation, a bag resting on the conveyor is attached to the discharge spout of the scale. When the bag is filled, the operator steps on a foot pedal to start the vibrating action of the packer.



At the completion of the packing, the operator releases the pedal. The packer stops and the jack belt starts up. The bag travels to the sewing machine conveyor and on to the sewing machine station. The new conveyor has a center distance of 3½ ft. between the pulleys, permitting close placement of sewing machine to scale. Belt speed is 75 ft. per minute. For more information check No. 5732 on the coupon and mail it to this publication.

No. 5726—Portable Ribbon Mixers

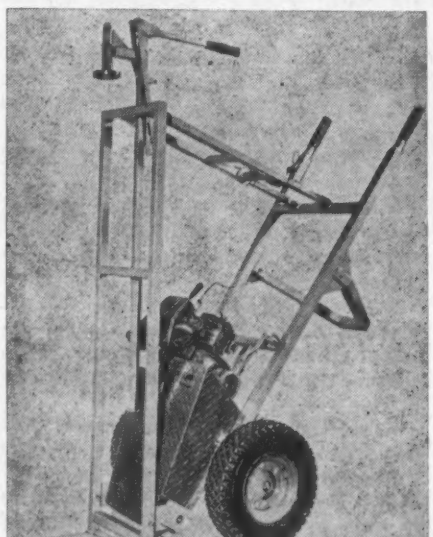
The Young Machinery Co. announces that a new line of portable heavy duty horizontal ribbon mixers is in production with .34 cu. ft. to 20 cu. ft. working capacity. The mixers are available in carbon steel, stainless steel, and monel metal with or without heating or cooling jackets and move freely on heavy duty industrial casters. They are furnished with single or double ribbon or ribbon and paddle agitators. The mixers have dust-tight, gasketed, hinged cover with quick opening clamps, marine type compression packing glands and anti-friction outboard bearings with sealed roller bearing pillow blocks — one fixed and one floating. Discharge is made either from the center or the end by a slide gate or a worm gear operated plug gate. The portable mixers are furnished as complete units with motors and drives. They are recommended for mixing dry, free flowing powders or granular materials. Secure complete details by checking No. 5726 on the coupon and mailing it to this publication.

No. 5733—Sewing Head Attachment

A new sewing head attachment has been announced by the Union Bag-Camp Paper Corp. Called the I & C Acto-Cutter, this attachment automatically starts and stops the sewing head and also cuts the thread chain between bags, company officials said. They continued: "Field experience shows that the use of the Acto-Cutter reduces the human element in sewing to a point where an inexperienced operator may be used. The attachment also makes it possible for one operator to easily perform the combined operation of carefully forming the bag tops and then feeding the bags into the sewing head. Another advantage is that it reduces torn, unsightly and irregular sewn closures to a minimum." Designed for use on the Union Special 80600E sewing head, the unit is available in two basic models. Secure details by checking No. 5733 on the coupon and mailing it to this publication.

No. 5676—Hand Truck

"The E-Z Loader," new motorized hand truck manufactured and distributed by the Walco Supply Co., "permits rapid loading, unloading and short range transport of bulky objects weighing up to 1,000 lb.," according to the manufacturer. The loader will transport maximum loads outside as well as in a warehouse, factory or shipping room. The unit has three speeds forward, one for reverse and is equipped with a heavy-duty transmission. The frame is of welded, square tubular steel and the unit is powered by a 2 h.p. Continental gas engine, with double positive clutch and finger tip safety brake control. Both wheels are powered. A manual snap-lock holds the load securely in place. No effort is required by the operator in loading, unloading or carrying, it is claimed. The unit has a gross weight of 275 lb. and the speed range is up to 4 m.p.h. Secure complete details by checking No. 5676 on the coupon and mailing it.



No. 6598—Insect Control

The Glenn Chemical Co. has announced the production of Tabutrex, a chemical which acts as a barrier to flies, called a new approach to the insect control problem. The company says the product has the approval of the U.S. Department of Agriculture. Tabutrex is an odorless and colorless liquid that is claimed to be completely safe to use. Company officials said its properties prevent the fly from alighting on a dairy animal and therefore the pest cannot bite or in any way affect the well being of the animal. The company has completed four years of research and experiments on the product. For details check No. 6598 on the coupon and mail it to Croplife.

Also Available

The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted to help keep retail dealers on the regional circulation plan informed of new industry products, literature and services.

No. 6593—Soil Fumigant

A new folder explaining how to use Crag Mylone is now available from Union Carbide Chemicals Co., Division of Union Carbide Corp. Mylone is a new, powdered soil fumigant that is said to need no plastic cover. It acts as a herbicide, soil fungicide, and nematocide in pre-planting treatments on a variety of ornamentals. It is now commercially available as a pre-planting treatment on ornamental propagating beds. Experimental use of the product is continuing in many different states on tobacco, vegetable, and forest-tree seed beds, and on turf. Formulated as an 85% wettable powder, Mylone can be applied dry with a fertilizer spreader or suspended in water as a drench or spray. Experimental dosages that gave most satisfactory results range from 100 to 300 lb. per acre, company officials said. Secure the folder by checking No. 6593 on the coupon and mailing it to Croplife.

No. 6594—Vermiculite Folder

A folder entitled, "Granular Formulations with Vermiculite" has been issued by the Vermiculite Institute. The folder covers the preparation of granular insecticides, herbicides and fungicides with vermiculite as the carrier. Hints on handling and formulating specific products are included. Properties and advantages of using vermiculite are described in the folder. Secure the folder by checking No. 6594 on the coupon and mailing it to Croplife.

No. 6596—Pasted Valve Bag

A development in multiwall packaging is the "stepped-end" bag introduced by the Crown-Zellerbach Corp. The design is a pasted valve bag in which the ends of each ply are cut in a stepped relation to each other, thus allowing each ply to be pasted to itself in the ends. The bottom of the bag is completely closed, while the top is closed except for one corner which is left open for filling

Send me information on the items marked:

☐ No. 5676—Hand Truck	☐ No. 6588—Sulfur Brochure
☐ No. 5692—Truck Crane	☐ No. 6590—Mineral Products
☐ No. 5701—Valve Bag	☐ No. 6591—Sprayer
☐ No. 5719—Disc Feeder	☐ No. 6592—Fungcide
☐ No. 5721—Pallet	☐ No. 6593—Soil Fumigant
☐ No. 5722—Speed Reducers	☐ No. 6594—Folder
☐ No. 5726—Mixers	☐ No. 6595—Catalog
☐ No. 5732—Conveyor	☐ No. 6596—Bag
☐ No. 5733—Attachment	☐ No. 6597—Garden Guide
☐ No. 5736—Bag Closer	☐ No. 6598—Insect Control

NAME .....

COMPANY .....

ADDRESS .....

CLIP OUT—FOLD OVER ON THIS LINE—FASTEN (STAPLE, TAPE, GLUE)—MAIL

FIRST CLASS
PERMIT No. 2
(Sec. 34.9, P. L. & R.)
MINNEAPOLIS, MINN.

BUSINESS REPLY ENVELOPE
No postage stamp necessary if mailed in the United States

POSTAGE WILL BE PAID BY—

Croplife

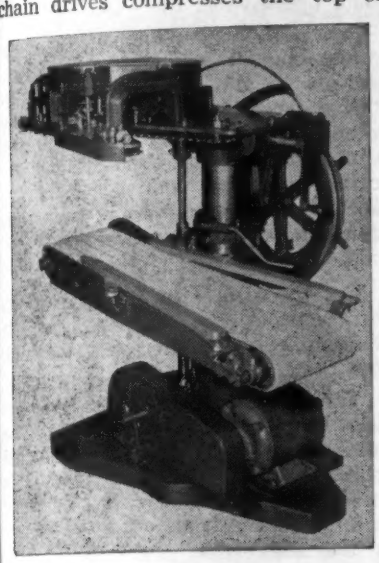
P. O. Box 67

Reader Service Dept. Minneapolis 1, Minn.

on a valve packer. Designed to hold lime, some fertilizers and other products, the bags are claimed to offer these advantages: (1) stepped corners provide more flexibility and greater strength; (2) half sleeve insert insures positive spouting ability; (3) flexible construction of the valve opening allows spouting with one hand; (4) positive closure on corner opposite valve prevents blow-outs; and (5) outer ply slit and inner ply full diamond fold give maximum strength. For details check No. 6596 on the coupon and mail it to Croplife.

No. 5736—Bag Closing Machine

A new descriptive folder outlining features of the automatic bag closing machine manufactured by the Hamer Machine Co. is available. The unit is described as a fully automatic closer for 2-, 5-, 10- and 25-lb. bags. Units are also available for 50- and 100-lb. bag sizes. An arrangement of chain drives compresses the top of



the bag and then seals it by a specially designed wire ring and up to 1,800 paper bags per hour can be closed, according to company officials. The models can be used in a variety of plant arrangements. Secure the folder by checking No. 5736 on the coupon and mailing it to this publication.

No. 5701—Pasted Valve Bag

Arkell & Smiths announces its new "SSS" (super side strength) multiwall bag. The bag is a standard pasted valve bag with a reinforcing strip run longitudinally along each edge to reinforce the sides and the valve and bottom corners. The manufacturer claims its new bag may save up to 10% on the cost of a sewn valve bag and up to 5% on the cost of a standard pasted valve bag. The company announcement states: "In principle, the 'SSS' bag is superior to the sewn structural strip bag: when a ply is removed from the sewn bag, the bag is weakened along the ends. The bag also is superior to the strength end bag, for it gives the bag reinforcement along the sides and shoulders; the strength end bag reinforces only the shoulders, and the sewing weakens the ends. For further information check No. 5701 on the coupon and mail it to this publication.

No. 6592—Fungicide

A technical bulletin on Terraclor, a new fungicide recommended for the control of a number of crop diseases, primarily certain soil-borne types, is announced by Olin Mathieson Chemical Corp. Terraclor is the firm's registered trade mark for pentachloronitrobenzene (PCNB). Terraclor is specific for a number of important soil-borne diseases. The product is available in various commercial formulations—as dust, wettable powders and emulsifiable concentrates. It is compatible with all insecticides and fungicides with a pH of 7 or below which are similar in formulation, company officials say. It is highly stable, relatively non-poisonous, and has a long residual, it is claimed. The product is broadcast or dusted in the row with suitable applicators. Conventional equipment is used for spray application. The material is non-corrosive. Additional information and literature are available by checking No. 6592 on the coupon and mailing it to Croplife.

No. 6595—Products Catalog

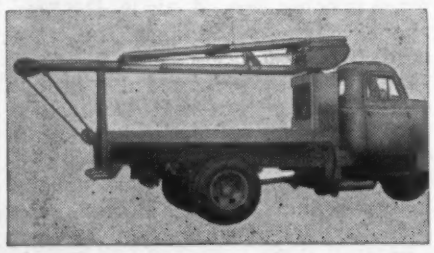
A 12-page products catalogue and informational booklet has been issued by the American Potash & Chemical Corp. The catalogue includes a description, properties and applications of nearly 70 chemicals marketed under the company's Trona trademark. Among major product groups included in the booklet are agricultural chemicals, boron chemicals, soda products, potassium compounds, bromines, lithium products, electrochemicals and refrigerants. A copy of the booklet will be sent without charge if you will check No. 6595 on the coupon and mail it to Croplife.

No. 6597—Lawn, Garden Guide

A new wall or desk chart, titled "Lawn and Garden Maintenance Guide," which shows how to control many gardening problems involving insects, plant diseases and weeds, has been issued by Diamond Black Leaf Co. The chart recommends one of eight products for treatment of more than 200 conditions. Easy-to-read, the large (16 by 32 in.), illustrated chart is broken down into four major areas —lawns, trees and shrubs, flowers, and vegetables—and gives a quick, ready reference to symptom, cause and treatment of the particular plant malady. The chart is available without charge. Check No. 6597 on the coupon and mail it to Croplife.

No. 5692—Truck Crane

A truck crane unit has been added to the truck equipment lines of the Anthony Co., it was announced through officials of Truck-Crane, Inc., subsidiary of the Anthony Co. The truck crane unit requires 18 in. of space behind the truck or tractor cab and leaves the body free for the payload, officials said. Loading, hauling and unloading are combined into one



work unit, it is claimed. Hydraulic power is provided and the boom swing is 280°. It projects or retracts hydraulically in the horizontal position or at any point up to an 85° elevation. Both horizontal and elevating type booms are available. Capacity is 5,000 lb. and ground level operation is possible. Check No. 5692 on the coupon and mail it to secure full details.

No. 5719—Disc Feeder

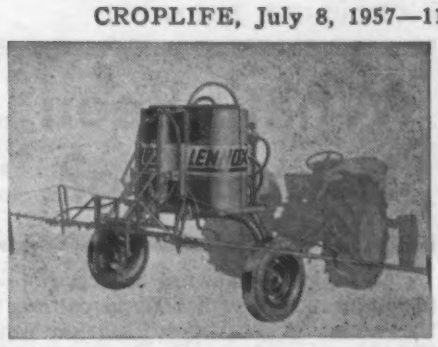
A new series of MECO SRV variable speed disc feeders, designed especially for batching or proportioning of crushed or ground dry material such as chemicals and additives, has been announced by the Manufacturers Equipment Co. The rate of discharge on the feeders is said to be accurately controlled and can be varied during operation with a hand wheel adjustment. Several sizes are available. The smallest unit has a constant feed range from a light trickle up to 2,000 pounds per hour. Larger models can feed up to 80 tons per hour. Models equipped with paddles are available where intense bin agitation is desired. A descriptive bulletin is available. Check No. 5719 on the coupon and mail it to this publication.

No. 6588—Sulfur Brochure

The Stauffer Chemical Co. has published a comprehensive 48-page brochure on sulfur. The brochure contains a description of production and refining techniques, statistics on the world's production of sulfur, and notes on the various uses of the material. It also includes specifications for the several types of conventional and insoluble sulfurs used in industry and agriculture, and tabulations of the physical and chemical properties of sulfur in its different forms. A copy of the brochure, "Stauffer Sulfurs," is available free on request. Check No. 6588 on the coupon and mail it to Croplife.

No. 6591—Trailer Mounted Sprayer

An "all-crop" pull-behind liquid fertilizer sprayer has been developed by Lennox Industries. The sprayer is called an all-purpose unit for use with any kind of spray—weed, insect or fertilizer. Among its features are a "full-floating" boom using a hydraulic shock absorber; a "break-away" hinge to enable wing booms to move backward and forward when an obstruction is hit; direct-drive pumps driven by tractor PTO shaft; 6-row boom with optional boom extensions



to convert into an 8-row sprayer; spray controls on tractor; 13 flat spray nozzles with interchangeable tips; full line of accessories for special jobs; and aluminum and stainless steel pressure regulator. Secure literature giving full details by checking No. 6591 on the coupon and mailing it to Croplife.

No. 5721—Pallet

The Sterling Lumber & Supply Co. reports a new development in pallet manufacture with its product called by the trade name, "Fine-Sawn" pallet. The firm's process is claimed to produce uniformly finished deckboards and stringers in fewer operations and with less waste than several other methods at less than usual cost. A "flocked" non-slip surface helps prevent bags and other items from slipping, according to the company. Details and prices are available without charge. Check No. 5721 on the coupon and mail it to this publication.

No. 5722—Speed Reducers

A new, illustrated, 8-page brochure showing the line of Strong-Scott Manufacturing Co.'s speed reducers is available. The reducers are recommended for speed reduction of ½ to 50 H.P., on equipment such as elevator legs, conveyors and many other types of equipment. Check No. 5722 on the coupon and mail it to secure the bulletin.

No. 6590—Mineral Products Folder

The Minerals & Chemicals Corporation of America has prepared a folder entitled "Minchemistry at Work." The folder describes "quick, easy production of dry, free-flowing pesticides dust bases from sticky solid poisons." Properties of Attaclay, the company's Attapulgite carrier and diluent, are outlined. Secure the folder by checking No. 6590 on the coupon and mailing it to Croplife.

OVER THE COUNTER

(Continued from page 9)

RINGING THE CASH REGISTER

Unsold Market

Many home owners remain unfamiliar with fertilizers and their importance in growing healthy, luxurious lawns. This is often the case because the home owner cannot obtain fertilizer conveniently. Many people will not go out of their way to buy fertilizer but will pick up a bag if it is available in their neighborhood. Dealers should make it a point to keep some lawn and garden fertilizer bags near the front entrance. The economy of buying 50- or 80-lb. bags should be stressed because customers are generally more liberal when applying fertilizer from a large bag. Give the customer the necessary information about proper application of fertilizer to, and frequency of fertilizing lawns, gardens, trees and shrubbery.

Give Them Service

Gardeners and suburban residents are on the increase, it is indicated by the growing demand for lime, fertilizer, seeds and the new chemicals manufactured especially for this market. Dealers have a splendid opportunity to supply not only these items but also to become service headquarters for this growing segment of our population. What constitutes this service? First in importance is reliable advice. Be sure the right recommendation is made for the job desired or the problem at hand. Be sure the customer understands the product directions. Stock merchandise which is right for the market and promote it through good display, consistent (not necessarily large) advertising, and honest, sincere personal selling. Let the customer know that your store is the headquarters for garden and yard supplies.

fore items are set into the over-all display.

Does the display appeal to the prospects who pass the store?

Is the merchandise in demand and of current interest to prospective customers?

Are the displays tied in with current newspaper and radio advertising so that maximum effect can be obtained from use of all possible mediums?

Have proper display cards been set up and are these cards fully explanatory? Are they easy to read and understand? Do they supply essential information and answer questions that will occur to customers who will be studying the merchandise in the display?

Is there a display card in a prominent location in the display that calls attention to exactly where the merchandise, and related items, may be found inside the store itself?

Does the display have any relationship to other displays? Is there any relationship between the various windows which will induce customers to move from one to the other?

Is each item of merchandise properly marked as to price, style or other essential information?

What's Been Happening?

This column, a review of news reported in Croplife in recent weeks, is designed to keep retail dealers on the regional circulation plan up to date on industry happenings.

A major infestation of grasshoppers caused damage of about $1,000,000 in northern California. Temperatures of well over the 100° mark aggravated the situation as the infestation progressed on two fronts. One area of 500,000 acres of rangeland and orchards in the counties of Butte, Glenn and Tehama was covered by the pests, as were nearly 7,000 acres in the Santa Maria Valley in Santa Barbara County.

General Chemical Division, Allied Chemical & Dye Corp., began operations of its Delta Works at Cleveland, Mississippi. The plant turns out cotton pesticides including various combinations of DDT, BHC, calcium arsenate, aldrin, dieldrin, endrin, ethyl and methyl parathion, malathion and toxaphene. Both dust and liquid products are produced.

The Carlsbad, N.M. mine of National Potash Co. was closed by a strike of members of the United Stone and Allied Products Works of America (AFL-CIO). The disagreement was over non-economic matters.

A demonstration of fertilizer technology at the Tennessee Valley Authority's Fertilizer-Munitions Development Center at Muscle Shoals attracted some 400 representatives of the fertilizer industry from 33 states and territories. Demonstrations included use of diammonium phosphate, and production of nitric phosphate and production of granular superphosphates by a continuous one-step process.

Herbert H. Schwardt was appointed head of Cornell University's department of entomolgy, to succeed Charles E. Palm who became director of the New York Agricultural Experiment Station.

The consumption of fertilizers for the 1955-56 fiscal year ending June 30, 1956 declined from the 1954-55 level in the U.S., the USDA reported. The annual consumption report stated that total consumption was 22,193,070 tons, which was 533,392 tons less than the similar period of previous year. Only one region of the U.S. showed a gain in use of mixed fertilizers. This was noted in the three Pacific states of California, Oregon and Washington.

There were several regions, however, in which gains were registered in the consumption of plant food materials, with the greatest gain in this category being registered in the East North Central region comprising Ohio, Indiana, Illinois, Michigan and Wisconsin. Use there was 139,414 tons greater than in the previous year.

Investigation into the causes for the April 16 explosion at Monsanto Chemical Company's Nitro, W. Va. plant which took the lives of eight workers and destroyed a methyl parathion production unit, revealed that an instrument failure started the chain of actions resulting in the explosion.

That damage by the alfalfa aphid is not as extensive as anticipated earlier was announced by the U.S. Department of Agriculture. By June 1, the pest had not reached the damaging proportions that it had by the same date in previous years since its discovery in the U.S. in 1954.

The Province of Saskatchewan, Canada, reported that outbreaks of grasshoppers and cutworms were threatening crops. Because of having kept on hand large quantities of pesticidal materials since a similar outbreak in 1951, Saskatchewan officials reported that sufficient amounts of insecticides were available to cope with the situation.

The National Plant Food Institute, at its June 9-12 meeting at the Greenbrier Hotel, White Sulphur Springs, W. Va., voted to launch an expanded program of education and demonstration for promoting greater use of fertilizers. Six potash producing companies, however, objected to the financial arrangements of the plan, declaring that their participation in the NPFI's program would result in an "additional burden" in view of their present support of the American Potash Institute's program of similar nature.

On June 20, a week following the Greenbrier meeting, John A. Miller, NPFI president, issued a statement asking that the six potash producers accept, for one year, the new higher dues structure adopted to finance the expanded NPFI program. Meanwhile a committee appointed by the Institute's executive committee, will study the dues situation for all members to see if any inequities exist.

The potash companies, however, sent letters of resignation to the NPFI, effective at the end of June. The six withdrawing firms, all members of the American Potash Institute, are: American Potash & Chemical Corp.; Duval Sulphur and Potash Co.; National Potash Co.; Potash Company of America; Southwest Potash Corp.; and U.S. Potash Co., division of U.S. Borax & Chemical Co.

New officers for the National Plant Food Institute were named as follows: C. T. Prindeville, Swift & Co., Chicago, chairman of the board; John A. Miller, Price Chemical Co., Louisville, Ky., president; Dr. Russell Coleman and Paul T. Truitt, executive vice presidents; W. R. Allstetter, vice president; Louis H. Wilson, secretary and director of information; and William S. Ritnour, secretary.

William J. Haude was named president of the Grace Chemical Co. division of W. R. Grace & Co. He was formerly vice president and general manager of Grace Chemical Co. at Memphis, Tenn.

American Potash & Chemical Corp., Los Angeles, announced that it will double its production capacity of granular potash at its Trona, Cal. plant. The project is expected to cost about $750,000, which is part of the company's current improvement program expected to total some $3,500,000.

Sales of liquid insecticides used for household and sanitary purposes totaled some 17 million gallons in 1956, the Chemical Specialties Manufacturers' Assn. announced at its midyear meeting in Chicago. Big gains in the sale of space sprays were tallied, the 1956 total being 4,188,304 gal. as compared to 1,797,515 gal. in 1955.

Dr. Charles E. Palm, formerly head of the department of entomology and limnology at Cornell University, was named director of the Cornell University Agricultural Experiment Station and director of research for the New York State Colleges of Agriculture and Home Economics.

EASTERN FIRM FINDS

Suggestion Box Can Be Source of Practical, Money-Saving Ideas

By AL P. NELSON
Croplife Special Writer

One outstanding value of a suggestion box is that it encourages the average employee to do more thinking about the business in which he is employed, and through a reward system, gives him an incentive to put his thoughts about operational and merchandising improvements in writing so that management can consider them.

The average employee in almost any business sometimes has ideas of how to improve work methods or customer service in his own immediate department, but unless he has an incentive to mention these ideas to his superiors, he often does not do so. The extent to which large manufacturing concerns have put the suggestions idea to work for mutual benefit of employer and employees is an example of what can be done with this technique.

Retailers have been slower to utilize the suggestions technique than have manufacturing firms, perhaps because retailers have a smaller employee force. Then, too, some retailers feel that because of their close daily contacts with most of their employees, they are in a position to get the employees' business improvement suggestions without resorting to a formalized program.

However, there is no substitute for a definite program, no matter how few employees a merchant may have. The mere process of getting the employee thinking about ways of improving the business is worth a great deal. It helps him to concentrate his thinking and usually makes him more appreciative of the steps necessary to get more volume and to reduce waste and operating costs without impairing efficiency.

A successful suggestion box program is being carried out by the Merrimack Farmers Exchange, Inc., Concord, N.H. This firm, which has more than 50 employees and 23 branch stores throughout New Hampshire, does an annual volume of business in excess of $12,000,000. The management, including Roy Peaslee, general manager and Charles Fletcher, sales manager, finds that suggestions from employees help materially in operating the farm supply business profitably.

The firm has been using the suggestions system for more than four years. An 11-man committee receives, handles and disposes of the suggestions which are turned in by employees. The committee, appointed by Mr. Peaslee, covers practically every department of the business, and it meets monthly to go over the suggestions which are received from employees.

Awards ranging from $5 to $25 are given to those employees whose suggestions are accepted as worthy of being put into practice. The committee finds that after the first year, the suggestions received from employees have more practical value. Accepted suggestions are read and explained at sales training meetings, and thus all employees have an opportunity to see what suggestions received rewards and why.

When an employee of the company wishes to send in a suggestion for consideration, he asks for a special suggestions form which is kept in each department of the store.

The form is a sheet of paper 6½ inches deep and 11 inches wide. It folds easily into a 3¼ by 5½ inch form, the front of which is a business reply envelope addressed to the advisory committee of the Merrimack Farmers Exchange, Inc., Concord, N.H. The form has a gummed flap for sealing the envelope.

When the form is opened up into a four-page affair, the first page (one half of it) is taken up by the business reply envelope copy. The second half of this first page has this copy:

"Forward Your Suggestion Either Way.

"a. Fold, seal and drop it in the suggestion box where you work.

"b. Fold, seal and mail. No stamp is necessary."

The second page of this form, when opened has the following copy:

"This blank is supplied for your convenience in presenting your suggestion to the advisory committee. Please write legibly or type. Make your presentation brief and to the point. Present the problem and describe in detail your suggestion to meet this problem. Show how your plan can be put into operation.

"I suggest (blank space)."

The third page of the suggestions form carries the trademark of the company, and the accompanying copy,

"Please detach and hold this section (each one is numbered). The number on the reverse side of this stub identifies your suggestion. It is the means by which the advisory committee will notify you as owner of the suggestion presented on this blank.

("If you need more space to present your suggestion, or to enclose drawings and the like, place additional sheets in this pocket.") The bottom half of page 3 is an envelope pocket without a flap.

Page 4 of this form is divided into three sections as follows:

"No..... Please Detach and Hold This Section. Date, your name, and address.

"I believe that my suggestion offers the following benefit or saving: (blank space). Be specific. To say that something should be done about this or that is ordinarily not a suggestion. In your suggestion tell us what to do and how to do it."

As mentioned before, this sheet, measuring 6½ by 11 in. when open, folds easily into a 3¼ by 5½ business reply, postage paid envelope, with flap for sealing. By having the suggestions number, and with the employee retaining a numbered stub, suggestions cannot be stolen by anyone. So long as the employee holds his stub, he can claim credit for the suggestion which is on the sheet identically numbered in the hands of the suggestions committee.

This suggestions system is working well at Merrimack Farmers Exchange, Inc., reports the management, with all departments and stores sending in suggestions during the year. Discussion of suggestions at sales training sessions helps considerably in keeping men on the lookout for ideas which can be accepted.

Gloomicides

It's hard to tell if a husband is yawning or trying to say something.

★

Notre Dame has recently instituted a special English course to familiarize their foreign students with American slang.

What prompted it? Continued mishandling of idioms, which reached a climax when one foreign student respectfully addressed a dean with "I'm very pleased to meet you, sir. I've heard you are a wise guy."

★

A small boy came home from school one day proudly exhibiting a book which he said he had won in a natural history contest.

"How did you do that?" asked his mother.

"The teacher asked how many legs an ostrich had and I said three."

"But an ostrich has only two legs," his mother replied.

"Well, all the rest of the class said four."

★

"I—I—I—think," began the witness.

"The jury is not interested in what you think, they want to hear what you know. Now talk up!" shouted the lawyer.

"Well, I can't talk without thinking," replied the witness. "I'm not a lawyer."

★

Overheard in Hollywood: "Sorry I couldn't get to your wedding, honey. Oh well, next time, maybe."

★

"George," remarked the wife in the midst of the housecleaning, "this suit of yours is so shabby—shall I throw it in the ragbag?"

"Goodness, no," retorted the husband, "That's the suit I always wear when I go to protest my income tax."

★

A candidate for sheriff called on a minister to ask for his vote at the coming election.

"Before I decide to give you my support," said the minister, "I would like to ask you a question.

"Shoot," said the candidate.

"Do you ever partake of intoxicating beverages?" inquired the clergyman.

"Before I reply, I would like to propound a single question," said the would-be sheriff, cautiously. "Is this an inquiry or an invitation?"

★

First Burglar: "Someone's knocking at that door. What'll we do?"

Second Burglar: "Let's jump out of the window."

First Burglar: "But we're on the 13th floor of this hotel."

Second Burglar: "Listen, brother this is no time to get superstitious."

★

Army troops were being trained for a secret mission. They were given an extremely tough obstacle course—swimming across a raging river, running up a vertical cliff, scrambling through barbed wire entanglements and climbing a peak with full equipment.

As they came to the end of their training period, a colonel barked to an Ozark Mountain boy in the company, "How do you like it, soldier?"

"Shucks, suh, it ain't nothin'," drawled the soldier. "Where I come from we have to go through country like this to get to the barn!"

★

Parking space is that area that disappears while you are making a U-turn.

Doing Business With

Oscar & Pat

By AL P. NELSON
Croplife Special Writer

As usual, Oscar Schoenfeld, rotund, balding, pot-bellied partner in the farm supply firm of Schoenfeld & McGillicuddy, had been at work for almost two hours, when Pat McGillicuddy, his tall, blue-eyed Irish partner came to work. Oscar always got to work a few minutes before seven in the morning, and always left at 5:30 on the dot, but Pat worked any time he felt like it, and this often included many hours at night at the store arranging displays, working on ads, making phone calls and attending farm meetings.

Each partner, while having a respect for the qualities of the other in certain fields, nevertheless held in contempt certain characteristics of the other. Pat rarely let his contempt show, but Oscar did.

Oscar looked at the clock—8:45, and then back at his work. Pat knew the meaning of that look; it used to irritate him, now it amused him. One day, just to tease Oscar he came to work at 11:20, ten minutes before Oscar's lunch hour. The rotund partner was so upset his liver didn't function properly for three days.

"I was just thinking, Oscar," Pat said slowly, after he had looked through his mail, "that we are running low on some of our stock, and here it is only July. I think we should reorder on some items."

"We got too much on the shelves now," Oscar said shortly. "Let's sell all we got. If we are out, that's just too bad for the customer. We can't tie up too much money in stock."

At this inkling of a division of opinion, Tillie Mason, the plump ulcerish bookkeeper looked up worriedly. She had repeatedly warned the two partners not to quarrel in her presence, else she would quit.

"But, Oscar," Pat said with a show of patience, "we can't exist if we can't sell. And you can't sell what you haven't got!"

"Collect what people owe us and then buy some more," Oscar replied stubbornly. "We are not bankers."

"Merchants expect to carry some of their sales on credit," Pat said slowly. "There'll never come a time when we'll be all caught up on collections."

"We can do like the supermarkets," Oscar said sharply. "We can sell for cash. You can't even charge a can of dill pickles there. Ach, those fellows know their business."

"But the food business is different from the fertilizer and garden supply business, Oscar. The farmer has been used to getting credit from retail feed and fertilizer dealers for years."

"Well, it is time that they learn different," Oscar growled. "Why should they go and spend all their money at the supermarket, the department store and other places and then come to us and say 'Charge it please? I'll pay you when my crop comes in—maybe.' Ach, we are suckers. That is why I say all the time, collect, collect, collect. Get our business as close to a cash basis as possible."

Pat shook his head. "Oscar, if you would come to the monthly meeting of the Albermarle County Feed & Fertilizer Dealers Assn. with me, you would see that most of the dealers don't like to extend credit to farmers, but they have to. Some of them have outstanding receivables from $14,000 to $22,000, especially in spring."

"Ach, they are crazier than I thought!" Oscar pronounced. "I am glad I do not waste my time going to meetings with those dumbkopfs."

"But you can't change credit conditions," Pat said.

"You can't!" Oscar yelled. "Do you catch the implement dealer selling machinery, even small stuff, without getting a farmer to sign a note? And the note must be good, too. Ach, those implement dealers are smart. Why don't fertilizer and feed dealers do the same?"

"But farm machinery is a recoverable item," Pat said. "Feed and fertilizer aren't. They are used up by the farmer. We can't go out and dig the fertilizer out of the ground if a farmer doesn't pay."

"No, that would cost us too much money, but, ach, I feel like doing it sometimes," Oscar snorted. "Why can't the farmer go to the bank and borrow money on his note when he wants to buy feed and fertilizer, and then pay us cash?"

"Because it's an extra step in the sales process and the farmer doesn't like it," Pat said. "He expects us to carry the load, and our only way out is to step out and sell more merchandise at a profit so that we can absorb any collection losses we take."

"And if you don't sell the extra goods you got?"

"You can sell it if you promote and advertise it. When a store is well stocked, you give people buying ideas."

"Ach, you give buying ideas to the wrong people," Oscar said critically. "The ones that buy extra stuff are them that always charge or take eight months to pay. Let them stick somebody else. Not us."

Pat sighed wearily. It was difficult to convince Oscar, but he tried once more. "Look. We need to order more power mowers, more sprayers, more insecticides, more garden and farm tools, more lawn seed. The bigger displays we have in July and August the more we'll sell. The carryover we can still merchandise in the fall. And then I'd like to order about 10 lawn sweepers."

"Lawn sweepers!" echoed Oscar. "What for? Can't people rake their leaves and grass?"

"Sure they can, if they want to," Pat said, "but we have sold about 250 power mowers in the past five years. We've got a list of the customers. If we sent each owner a letter calling attention to a lawn sweeper, how handy it is, we have a good chance of selling them. You have to take advantage of all those sales opportunities, Oscar. Can't you see that?"

Oscar's lips were tight. He picked up a long list of delinquent accounts. "McGillicuddy," he said severely, using Pat's last name, which he always did when he was very angry with him, "Ach, I will make you a bargain. We have $4,200 in accounts over 30 days. If you collect $3,000 of it inside 10 days, I will go along and let you buy some of that extra stuff. If you don't, I will buck you, ach, every way I can."

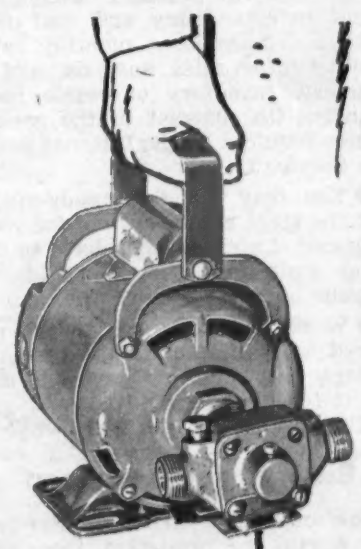
The two men exchanged long, hard looks. Then Pat got slowly to his feet, his face white. "I'll think it over at coffee," he said. "In the meantime I'll take a copy of Croplife along and read the classifieds. Maybe I can buy a business for myself, somewhere." And off he stalked.

Oscar gazed after him. "What will you buy it with!" he suddenly shouted. "Wind?"

BACTERIAL CONTROL

GENEVA, N.Y.—A bacterial disease of European chafer grubs that destroys from a third to a half of the grubs in areas where it becomes established is under investigation as a means of control of this pest of lawns, winter grain, and pastures. Studies of a particularly virulent strain of "milky disease" bacteria growing under western New York conditions are being made at Cornell's Experiment Station at Geneva, a unit of New York State University, in cooperation with the Entomology Research Division of the U.S. Department of Agriculture.

A pump you can *carry* is a pump you can *sell*

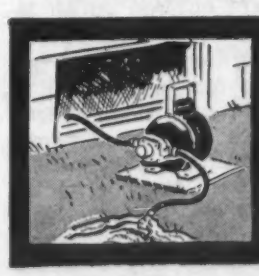


HYPRO Portable Pumps (complete with motor, or pump only for attachment to your customer's motor) belong in every dealer's merchandising program. Unlimited uses include pumping out basements, cesspools, boats, as well as spraying weeds and mosquitos. A necessity on the farm or at the cottage. Ask your jobber or write to: HYPRO ENGINEERING, INC., 700 39th Ave. N.E., Minneapolis 21, Minn.

2 SIZES AVAILABLE

Model No., pump only	B40	B58
Model No., with motor	MB40	MB58
Horsepower of motor	¼	⅓
Size hollow pump shaft	½"	⅝"
Max. delivery, gal./min.	5	10

Pumps also available with gas engines.



HYPRO PUMPS

FUNDAMENTAL RECORDS

(Continued from page 9)

less closing inventory (with inventory usually figured at wholesale price, market value, or cost to you, whichever is lower).

** This system for figuring net profit is for a single proprietorship or partnership; corporation statements require a slightly different method.

Types of Record Systems

There are two general types of record-keeping systems you can use: the double- or the single-entry method. The first involves recording each item in two different ways called "debit" and "credit." For example, when a customer pays a bill for $10, his charge account will be credited (reduced) by $10 while the store's cash will be debited (increased) by $10. Thus, the single payment shows up in two places. All other transactions are also recorded in terms of debit and credit. Hence, two sets of figures are developed. The total of one set, of course, should equal the total of the other. If the totals do **not** balance, you know a mistake has been made. Because of that safety factor, this system is the most commonly used. Broadly speaking, however, a person needs a good working knowledge of accounting if he is to set up and operate a double-entry system. Without such knowledge, it is virtually essential to seek qualified help.

The second system involves just one recording of each item and only a single set of figures. Many small businesses use it successfully, particularly during their earliest and smallest years. While it calls for less work, it also makes it much harder to detect mistakes. However, it is far better than no recordkeeping system at all.

Choosing Your Record System

There are four important considerations in selecting a record system:

- You must keep certain minimum records as required by law for applicable tax purposes, such as income tax, payroll taxes, sales tax, personal property tax, and so on.
- These **minimum** records are sometimes not entirely sufficient for good management. As a small marketer, you will probably need additional merchandising and cost records; for example, a monthly sales summary for sales analysis, and a quarterly inventory of resale merchandise (in contrast to the annual figures required by the Internal Revenue Service.)
- You may not find ready-made, just the right record system for your business; if not, you may have to develop some forms and methods to fit your own management needs.
- Work and time are always required in setting up a good record system, but when you have one and use it for planning and control, you will find the effort well worthwhile.

Basic Records to Keep

Correct figures on net profits and net worth are important from the start in any business. To derive these figures, you need at least the following records:

Current Records: (1) A detailed record is needed of income from sales of products, services, or other sources. It is best to keep your income items separate so that you can make a comparative analysis at a later date. Items charged by customers are usually best handled as sales income at the time the sales transaction takes place.

(2) An accurate notation should be kept of funds paid out for any purpose; for resale merchandise purchased, for operating expense (payroll, utilities, supplies), for personal withdrawals, and so forth. Receipts should be obtained for all of these if possible.

(3) A system of money control—that is, a daily check on cash to be accounted for—is highly important in most small businesses. Cash registers usually have a method of doing this, as well as recording income and paid-outs. If you do not use a cash register, however, a simple method of checking cash each day is as follows:

SALES INCOME (for the day—all sales, whether charge or cash)
plus STARTING CASH (Change fund)
COLLECTIONS ON ACCOUNT (from charge customers)
SALES TAX (if applicable)
equals TOTAL IN
less PAID OUT (in cash for any purpose)
CHARGE SALES (to customers on credit)
equals HOW MUCH MONEY YOU SHOULD HAVE

It is a simple matter to count your cash and checks and compare the total with the above to see whether you are over or short in cash for the day. A checking account is best to use for making payments instead of taking cash from the till. Your checkbook stub and cancelled check offer a good basic record for this type of payment. In many instances a petty cash account is useful. With it, cash payments are made not from the day's income, but only from the petty cash fund, or by check.

Summary Records: (1) Income or Sales Summary: This is a review of all income for the month (or period). It can be an important sales-analysis record if you keep your departments separate. For example, a grocer might separate his summaries of canned goods, meats, vegetables and fruits, dairy products, cigarettes, and sundries. The original information on which to base this summary must be recorded at the time the sale is made. Many cash registers use special keys to identify sales of meats, dairy products, and the like. However, if you don't own a cash register, some sort of notation must be made by hand showing the classification and amount of the sale. In some cases, an extra ticket containing the desired information can be fastened to the item in advance, and removed at the time of sale. In other cases, a sales slip is made out with suitable carbon copies when the customer makes the purchase. The method you adopt should be designed to fit the merchandise you carry. You can departmentalize your business to give any breakdown desired for management purposes.

(2) Purchase Record: This is for recording any purchase of merchandise for resale, whether paid for or obtained on credit.

(3) Expense Summary: All expenses in operating your business are entered on this record. The expense classifications must be kept separate under such headings as payroll, payroll taxes, income taxes, license fees, supplies, utilities, car expense, shortages, losses, depreciation on equipment, and bad debts.

(4) Payroll Record: The gross and net amounts you pay an employee by date, plus the withholding tax and social security taxes deducted (also unemployment insurance, and others, if applicable) are entered on an individual sheet for each employee.

(5) Equipment and Depreciation Record: This is for recording purchases of capital items, such as furniture and fixtures, business automobiles, building, and the like. Capital items such as these are not an expense in themselves, but the wear and tear (depreciation) on them is. One twelfth of the yearly depreciation should be prorated on the profit-and-loss statement to give you a realistic profit picture.

(6) Accounts Payable Record: This is a list of each supplier or creditor and the amount you owe him.

(7) Accounts Receivable Record: This indicates the amount each charge customer owes you.

(8) Withdrawal and / or Capital Record: This is necessary in order to figure your net worth. Include it in any funds you withdraw as a proprietor's salary or for any other purpose, and any money or capital item (at reasonable value) you add to the business. It is important to keep your personal and household finances separate from the business; this will greatly simplify your accounting. You should pay yourself a regular salary instead of dipping into the till at random. An orderly approach is better for tax purposes, too.

(9) Physical Inventory Record: If you have a business where you buy and resell merchandise, this record is necessary for income tax purposes once a year. For good management, however, many small firms should take a more frequent inventory and ascertain its value in order to obtain regularly a true profit analysis.

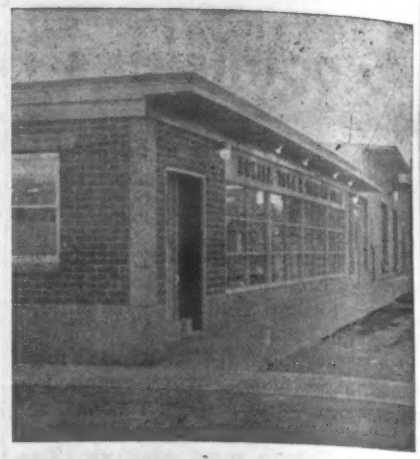
The fundamental records above will enable you to make out a basic profit-and-loss statement and balance sheet. These are the minimum, and any business should be guided by the needs it may have for a more detailed analysis.

An example of a simple profit-and-loss statement from these records is as follows:

Gross sales		$50,000.00
Cost of sales:		
Opening inventory	$ 5,000.00	
Purchases	30,000.00	
Total	35,000.00	
Closing inventory	6,000.00	
Total cost		29,000.00
Gross profit		21,000.00
Expenses:		
Payroll	$ 7,000.00	
Payroll tax	140.00	
Licenses	115.00	
Supplies	600.00	
Utilities	900.00	
Insurance	300.00	
Car expense	800.00	
Rent	1,200.00	
Depreciation	350.00	
Bad debts	40.00	
Total		11,445.00
Net profit		$ 9,555.00

Profitability Analysis

Those figures could comprise a yearly profit-and-loss statement for an independent drugstore. It would do for tax purposes. But if this were your company and you were to ask if you should have made a greater profit, you would have only part of an analysis. In analyzing your profit figure, suppose you found it to be less than that of comparable businesses? Suppose also that you set out to learn why. One way to start would be to work out a profit picture by departments. This means selecting the major selling activities in your store and keeping them separate in your records. For example, you might select as your main departments drugs, sundries, and cosmetics. Your departmental-profit analysis (using the same total figures as above, and obtaining the sales breakdown from your cash register tapes or other segregated record) might then look like Table 1.



FRONT VIEW — The front of the Donlea Town & Country Store, Albert Lea, Minn., is shown here. The store was recently opened as a refail outlet for garden, lawn and farm chemicals, yard equipment and related supplies. The store's main entrance is in the foreground. Most of the front is devoted to large see-through display windows.

Reviewing the figures in Table 1, many readers will say, "All right, that looks reasonable enough down as far as gross profit. But I'm not clear about those expenses. I pay one bill for insurance, not three. How do I know that $200 shouldn't be chalked up against drugs, while sundries and cosmetics carry only $50 apiece? I haven't any records which will give me that breakdown. I'm confused about some other items, too, like rent and licenses."

The explanation here, is that many general expenses are "allocated"; in other words, the manager decides how the total cost burden is to be divided up among his various departments. It is generally agreed that each should be charged with some part of the costs of rent, insurance, and the like. The basis for working out the proportions, however, is up to the individual. One common method involves floorspace occupancy. If, for instance, drugs take up two thirds of the total floor space, then it could also bear two thirds of, say, the insurance cost. Other bases, of course, are used including those built on the percentage of total sales produced by a given activity. Often, several different bases are used. There is no universally accepted rule.

With the allocations used in this particular departmental analysis, the sundries department turns out to be a losing activity. Knowing that fact, you could then look more effectively for the causes behind that situation, and determine more quickly what could be done.

This method requires only that you keep your departments separate on the applicable basic records. But it does little good to merely have this analysis on your business; you should use the information for better management. Compare your figures by month and year with those of other stores of your size and type. Check them with average sales, cost and profit percentage averages where available. Plan future operations in light of these facts.

Table 1

	Drugs	Sundries	Cosmetics	Totals
Gross sales	$30,000.00	$10,000.00	$10,000.00	$50,000.00
Cost of sales—				
Opening inventory	3,000.00	1,500.00	500.00	5,000.00
Purchases	15,000.00	9,000.00	6,000.00	30,000.00
Total	18,000.00	10,500.00	6,500.00	35,000.00
Closing inventory	3,500.00	2,000.00	500.00	6,000.00
Total cost	14,500.00	8,500.00	6,000.00	29,000.00
Gross profit	15,500.00	1,500.00	4,000.00	21,000.00
Expenses—				
Payroll	4,500.00	1,000.00	1,500.00	7,000.00
Payroll tax	90.00	20.00	30.00	140.00
Licenses	91.00	12.00	12.00	115.00
Supplies	400.00	100.00	100.00	600.00
Utilities	500.00	100.00	300.00	900.00
Insurance	200.00	50.00	50.00	300.00
Car expense	600.00	50.00	150.00	800.00
Rent	800.00	200.00	200.00	1,200.00
Depreciation	250.00	50.00	50.00	350.00
Bad debts	40.00	...	...	40.00
Total	$ 7,471.00	$ 1,582.00	$ 2,392.00	$11,445.00
Net Profit	8,029.00	(—82.)	1,608.00	$ 9,555.00

FARM SERVICE DATA

Extension Station Reports

Massachusetts farmers can halt invasion by weeds on forage crops simply and cheaply with the assistance of new chemicals, Dr. Jonas Vengris, research agronomist at the University of Massachusetts, said recently. "If the farmer makes use of certain preventive measures and backs these up with chemical treatments, he will find it costs less to control weeds than to keep them," he said.

Dr. Vengris ranked preventive measures first in weed control. Several sources of weed infection are seeds produced in the field, he said, those in hay or grains passing through cows into manure to fields, or weed infested seed or bedding. He suggested that weeds be prevented from reaching the seed stage, that hay be harvested before seeds form, and that only clean lots of seed, feed, and bedding be used.

The agronomy department at the University has also experimented with chemical controls and has discovered which chemicals work the most successfully for both crop use and brush control, he pointed out. Among these are controls for annuals and perennial weeds, particular weeds in legumes, and brush. Recommendations for the use of these chemicals, as well as a list of preventive measures, have been organized into a publication by the Cooperative Extension Service, a leaflet, "Weed Control in Forage Crops."

★

Alfalfa weevil has spread to within 70 miles of the Vermont border. George MacCollom, Vermont extension entomologist, warns that this insect enemy has been found as far north as Albany in New York state and New Haven in Connecticut.

First found in Utah in 1904, the weevil has been a serious problem in western states for 50 years. Between 1952 and 1955, new infestations were found in eight eastern states. Since that time it has spread rapidly in nine states.

★

A new research publication, dealing with the control of the southern corn rootworm, has been released by the West Virginia University Agricultural Experiment Station.

Circular 102, entitled "Southern Corn Rootworm Control in West Virginia," was written by Harry L. Hansen, assistant entomologist, and C. K. Dorsey, entomologist. The authors point out that the southern corn rootworm is one of the most destructive pests of corn in West Virginia, as its feeding severely injures the plant roots. The worm can also carry a corn disease known as bacterial wilt of corn.

The southern corn rootworm can be controlled when the insect is in the larval stage. This is when it does its greatest damage. Aldrin, heptachlor and chlordane are all effective against the rootworm when properly applied. Tests conducted by the entomologists during the 1946 growing season show that the insecticides can reduce rootworm populations by as much as 95%.

★

Chemical weeding of strawberries may reduce hand labor by as much as two-thirds, and it may also serve as an emergency means for reclaiming beds badly fouled with weeds. These opinions are expressed by Dr. Otis F. Curtis, Cornell and New York State University fruit specialist at the experiment station at Geneva. Dr. Curtis has summarized his findings on chemical weed control in strawberries in a folder available upon request to the station.

Weeding is the largest cost item in strawberry growing, he explains. "Yet the same labor situation that causes this often makes it uneconomical to pick weedy beds, so the best chance of reducing over-all production cost is by improving methods of weed control," he says.

★

Investigations of soil and root samples from over 1,000 fields have shown that nematodes constitute a major problem to Maryland agriculture, the University of Maryland reports. No field has been found free of plant-parasitic nematodes.

About 35 different types of plant parasites have been identified, many of them unknown in Maryland prior to this survey. The reduction in over-all yield of all Maryland crops is estimated at 12 to 15%. Based on this figure, nematodes cause at least $12 million damage per year.

In order to devise control measures based on rotation, extensive host ranges are being prepared through greenhouse work. When resistant varieties are found, they can be used to reduce severity of nematode injury. In some cases, however, such wide host ranges exist that no rotation can be suggested at this time.

WEED CONTROL FIELD DAY

STATE COLLEGE, MISS. — A weed control field day was held at the Mississippi Experiment Station here recently under the direction of W. R. Thompson, Mississippi extension agronomist. The program included demonstrations of weed control results in cotton, corn, soybeans and vegetables. Educational demonstrations, which have been established in several Mississippi counties, were studied for the use of various herbicides on different weeds. Others on the program included Vernon Harris, Tildon Easley and Dr. W. C. Normand, of the Experiment Station staff, and T. M. Waller extension associate agronomist.

TVA Representatives

KNOXVILLE — Tennessee Valley Authority has added field representatives at Lincoln, Neb., and Lexington, Ky., to work with the TVA experimental fertilizer program and the distributor demonstration program. John I. Bucy, at Lincoln, will cover Nebraska, Iowa, Missouri, Kansas and Colorado, and Charles B. Hendrix, at Lexington, will work in Kentucky, Indiana, Illinois, Ohio and Michigan.

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- Potato Leafhopper
- Cotton Fleahopper
- Alfalfa Caterpillar
- Cowpea Curculio
- Corn Rootworm
- House Fly
- Spotted Cucumber Beetle
- Stink Bug
- Yellow-Striped Armyworm
- Blow-Fly
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- Confused Flour Beetle
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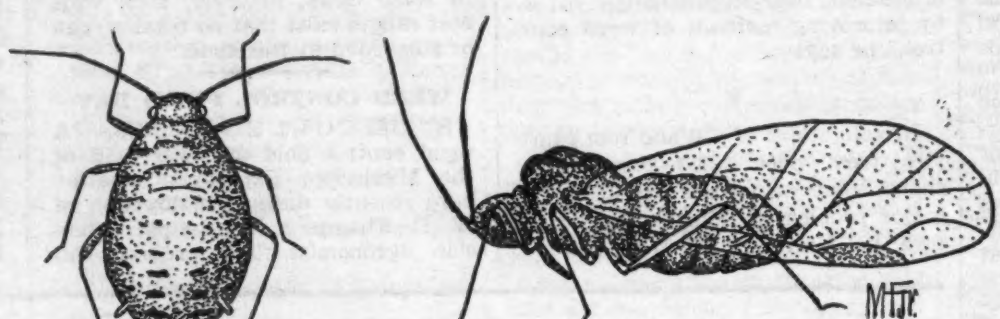


Cabbage Aphid

How to Identify

These pests are very small in size, being frequently called "plant lice." They are usually found on cabbage plants in all stages of growth, in dense groups of whitish-green plant lice which are about the size of pinheads. The cabbage aphid, from a layman's point of view, closely resembles the turnip aphid. Entomologists, however, can distinguish between the two. Pictured above are the wingless and winged female of the species.

Damage Done by Cabbage Aphid

Leaves on which these clusters of aphids are found, curl badly into cup-like shapes with the inside surface covered with the sucking pests. Plants thus infested may die, or at best are dwarfed in size and produce cabbage heads unsuitable for marketing. The cabbage aphid occurs in many parts of the country where its host plants are grown. Its hosts include, in addition to cabbage, other plants of similar nature, such as cauliflower, collards, kale, turnips, Brussels sprouts and radishes.

Life History of the Aphid

The reproductive capacities of this aphid are truly phenomenal. One scientist, figuring on the basis of New York state conditions which allow some 16 generations of aphids between March 31 and October 2, the descendants of one female aphid, if all should live, would number in the septillions by the end of this 6-month period (1,560,000,000,000,000,000,000,000). It is pointed out that this number might be doubled in climates where a longer season is available.

Small nymphs hatching from eggs in the spring quickly attain full size, but have no wings. These are all females, called "stem-mothers," and they can reproduce young without mating. These young are also wingless and they in turn produce up to 100 active nymphs within a few weeks. Thus, several generations of aphids form a cluster about their mothers on the plant until leaves become crowded with the parasites. Subsequent generations do develop wings, enabling their owners to fly to other plants. They settle on the new host plant and begin a new series of generations. As the season draws to a close, an all-winged generation is usually produced, which includes some males whereas heretofore in the season, all were females. The winged females, termed "fall migrants," are able to get to a perennial plant where they give birth to nymphs which grow into wingless females. These in turn mate with the males of the preceding generation. These females, after having mated, lay up to four eggs in some sheltered spot on the plant and die shortly afterwards. The eggs will hatch stem-mothers to start an entirely new cycle.

Control Methods

Since the host plant, cabbage, is a leafy variety for human consumption, any pesticide used for control of the aphid must be applied within carefully prescribed limits, both as to timing and amounts of toxicant, in order to avoid the possibility of excessive residue at harvest. Local authorities should be consulted as to recommended methods and materials.

Drawing of Cabbage Aphids furnished Croplife through courtesy of the artist, Marvin H. Frost, Jr.

PACIFIC BRANCH ESA

(Continued from page 1)

tomological Society of America and retired chief of the California State Department of Plant Quarantine, stressed the fact that many insect control problems have reached the serious stage and that there is a big demand for trained entomologists. He indicated there is a bright future for scientific minded youths interested in insect control.

A panel of specialists spent a half an hour telling the group what can be done toward training entomologists and attracting prospective students to enter the profession. Moderator for this discussion was Leo Gardner. Members of the panel were Stanley Bailey, Loren D. Anderson, Walter Ebeling and Frank Johnson.

Along this line was another talk by George F. Carter of the Agricultural Pest Control Operators Assn., Berkeley, Cal. He said that exemption of professional entomologists with requisite experience from certain restrictive regulation and licensing along with privileges other professionals enjoy, may raise standards in agricultural pest control. Mr. Carter said that in California uniformity of regulations by crop areas and automatic county registration had the tendency of attracting higher caliber men to the industry.

A. L. Strand, Oregon State College president, Corvallis, Ore., discussed 19th century scholarship in relation to entomology and to science in general, and John D. Lattin, OSC entomology instructor, told of the history of science and its position in the entomology curriculum. He said a history of science course, properly timed in the graduate curriculum, provides an integrated treatment of widely distributed facts and ideas gathered during the period of intensive study in the under-graduate and graduate periods.

Another national officer, R. H. Nelson, Washington, D.C., executive secretary of ESA, expressed the need for good public relations between the entomologists and the general public in their common fight against plant and food destroying insects.

Dr. E. F. Knipling, director of USDA's Entomology Research Division, Beltsville, Md., said that his agency is pushing a program to develop better sprays for control of beef and dairy cattle insects without contaminating meat or milk.

The importance of the forest entomologist was emphasized by Philip C. Johnson with the U.S. Forest Service, Missoula, Mont. He said traditional endeavor in the forest entomology field—insect research, surveys and advice on technical control aspects — has been performed by technicians skilled in both forestry and entomology. He indicated that a trend toward more fundamental investigations and applications suggests increasing use of technicians skilled in only one or the other of these two biological sciences.

Sevin, a new experimental insecticide, formerly known as 7744, has been found by field tests to show promise in the control of codling moths, grape leaf hoppers and citrus red scale, according to Robert E. McKenzie of the Carbide and Carbon Chemicals Co., San Francisco. He said that Sevin, N-Methyl-1-naphthyl-carbamate, introduces a novel structure containing no sulphur, phosphate or chlorinated groupings, and showed a relatively low order of mammalian toxicity in both acute and chronic tests.

Carl R. Tanner, Portland, Ore., reported that pre-blossom sprays of mitox, p-chlorbenzyl p-chlorphenyl sulfide provided nearly season-long control of European red and clover mites on Pacific Northwest apples and pears. He said that summer sprays of mitox were also effective against these two mite species. Two-spotted mites required supplemental summer sprays.

J. Wilcox and A. F. Howland of the USDA Entomology Research Division, Whittier, Cal., reported that thimet sprays applied in soils alongside strawberry plants were 97% effective in controlling aphids. When applied as a foliage spray thimet was 98% effective in the control of two-spotted spider mites. These scientists also found that granular thimet in the soil was not as effective against these insects as it was in spray form. However, against aphids on turnips, applied in a similar manner, the granular thimet in the soil was more effective than the liquid soil applications and was just as effective as the foliage sprays.

The spider mite of tree fruits was the subject of a panel discussion moderated by Harold F. Madsen of the University of California entomology department, Berkeley.

A. Earl Pritchard of the University of California, explained the taxonomy and distribution of tree fruit spider mites, while four specialists told of the control of tree fruit spider mites in the western states. Roland N. Jefferson from the University of California, Los Angeles, explained spider mite resistance studies under greenhouse conditions, while L. R. Jeppson of the Riverside, Cal. citrus experiment station told of the resistance of citrus red mite to acaricides.

A five years' experimental study of alfalfa seed insect control was summarized by E. C. Klostermeyer of the Washington State College Branch Experiment Station at Prosser. He reported that 19 different insecticides and many combinations and conditions of treatment were tested on alfalfa as control sprays for various insect pests affecting seed production. He said that DDT treatments gave the highest seed yields and most satisfactory lygus bug control.

Serious Grasshopper Outbreak Spreads In California

SAN FRANCISCO — The grasshopper invasion spread from two north central California counties into many other areas last week, and threatened to become the most serious infestation to crop growers in many years.

Arthur Seeley, county agricultural commissioner of Contra Costa County, termed it "the worst invasion I've seen in years," and said that 200,000 acres of his county's vineyards, orchards, truck and field crops were endangered by the attack.

Chemical spraying operations both from the land and from the air were begun in this county as well as several other counties.

Similarly affected was Alameda County, immediately adjoining on the east shore of San Francisco Bay. Stanislaus County was also invaded. The invasion had become of "potential concern in nearly every valley county you can mention," according to Robert Harper, chief of the state bureau of entomology. Invasions of Butte and Tehama counties were reported earlier.

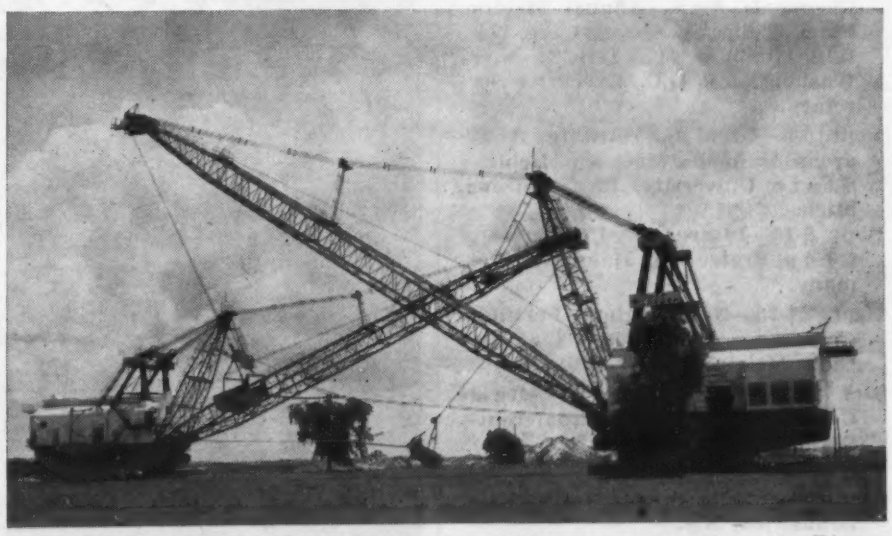
Meanwhile in south central part of the state, Santa Maria invasions forced closing of highway 101 temporarily while planes sprayed the area with insecticides. James Jones, agricultural inspector, said it was the worst outbreak of grasshoppers in recent years, with 7,000 acres threatened. There was a reported $100,000 damage in Santa Barbara County already this year, and spraying operations were stepped up.

SAFETY EXECUTIVE COMMITTEE MEETS—Shown above is a scene at Richmond, Va., where the executive committee of the Fertilizer Section, National Safety Council met recently. Utilizing the offices of Southern States Cooperative, the group heard reports of safety progress within the industry and laid plans for the annual convention scheduled to be held in Chicago in October, 1957.

Standing, left to right, are F. Wayne High, Baugh & Sons, Baltimore, Md.; Elmer Perrine, Nitrogen Division, Allied Chemical & Dye Corp., New York; Grayson B. Morris, Southern States Cooperative, Richmond; J. R. Terry, Davison Chemical Corp., Division W. R. Grace & Co., Bartow, Fla.; John Mark, Ohio Farm Bureau, Columbus, Ohio; Bob Kelly, Swift & Co., Chicago; Curtis A. Cox, Virginia-Carolina Chemical Corp., Richmond, past chairman of national section; and W. C. Creel, department of labor, State of North Carolina, Raleigh.

Seated (beginning at head of table, clockwise) are: Ed O. Burroughs, F. S. Royster Guano Co., Norfolk, Va., national chairman; George F. Dietz, Fertilizer Manufacturers Cooperative, Baltimore, Md.; Mike C. Ellison, Mississippi Chemical Co., Yazoo City, Miss.; S. Cottrell, Olin Mathieson Chemical Corp., Little Rock, Ark.; Vernon S. Gornto, Smith-Douglass Co., Norfolk, Va., past chairman; Earmon Perry, Moultrie, Ga.; Ansell I. Rainey, Phillips Chemical Corp., Bartlesville, Okla.; David E. Anstine, also of Phillips Chemical Corp.; Thomas J. Clarke, GLF Soil-Building Service, Ithaca, N.Y.; John C. Kato, National Safety Council representative, Chicago; and George L. Pelton, Smith Agricultural Chemical Co., Columbus, Ohio. (Photo courtesy of Southern States Cooperative.)

4-H CITATION—A special citation was awarded by the 4-H Clubs of the United States to Louis H. Wilson, secretary and director of information of the National Plant Food Institute "in appreciation of outstanding contributions to the development of the 4-H Club program." The citation was presented by Otto Croy, left, assistant administrator of the Federal Extension Service, U.S. Department of Agriculture, to Mr. Wilson, right, at special ceremonies as a part of the 27th National 4-H Conference held in Washington, D.C. He was one of ten "Friends of 4-H" selected for honors "because of outstanding contributions they have made to the growth and development of the 4-H Club movement."



JOUSTING TOURNAMENT?—The above photo was snapped as the Bigger Digger, left, and the Super Scooper of International Minerals & Chemical Corp., approached each other on a cross-country move. The huge machines, which are used by IMC's Phosphate Minerals Division in Florida, were enroute to alternate mining areas.

MEETING MEMOS

July 10—Louisiana Grade Conference, State Capitol Bldg., Baton Rouge.

Oct. 15—Association of Official Agricultural Chemists, 71st Annual Meeting, Washington, D.C., Dr. William Horwitz, Box 540, Benjamin Franklin Station, Washington, D.C., secretary-treasurer.

1958

June 15-18—National Plant Food Institute, Annual Meeting, Greenbrier Hotel, White Sulphur Springs, W. Va.

EDITOR'S NOTE—The listings above are appearing in this column for the first time this week.

July 1-12—Summer Meetings, Georgia Plant Food Educational Society, July 1, E. O. Cabiness Farm, Oglethorpe County; July 9, A. C. Ewing Farm, Newton County; July 11, H. D. Burton Farm, Thomas County; July 12, Sam Neville Farm, Bulloch County; J. Fielding Reed, 710 Mortgage Guarantee Bldg., Atlanta 3, Ga., Secretary-Treasurer.

July 4-5—Alabama Seedsmen's Assn., Battle House, Mobile, Ala.

July 10-14—Plant Food Producers of Eastern Canada, Manoir Richelieu, Murray Bay, Quebec.

July 11-12—Great Plains Anhydrous Ammonia Meeting, Kansas State College, Manhattan, Kansas.

July 12-13—North Central Division, American Phytopathological Society, University of Minnesota.

July 17-19—Southwestern Fertilizer Conference and Grade Hearing, Buccaneer Hotel, Galveston, Texas.

July 18—Ohio Agricultural Ammonia Assn., Everglades Restaurant, Columbus, Ohio, John Studer, Findlay Ice & Fuel Co., Findlay, Ohio, Secretary.

July 30-31—Fertilizer Meetings and Experiment Station Tours, Auburn, Ala. and Thorsby, Ala., Sponsored by the Alabama Agricultural Experiment Station and Alabama Soil Fertility Society.

Aug. 13-14—Ohio Pesticide Institute, Summer Meeting, Ohio Agricultural Experiment Station, Wooster, Ohio, J. D. Wilson, Ohio Agricultural Experiment Station, Secretary.

Aug. 14—Connecticut Agricultural Experiment Station Field Day, Mt. Carmel, Conn., Dr. James G. Hersfall, New Haven, director.

Aug. 28-31—Soil Conservation Society of America, Annual Convention, Asilomar, Cal.

Sept. 4-6—National Agricultural Chemicals Assn., Annual Meeting Essex & Sussex, Spring Lake, N.J., L. S. Hitchner, 1145 19th St. N.W., Washington 6, D.C., Executive Secretary.

Sept. 5-6—Great Lakes States Anhydrous Ammonia Meeting, Michigan State University, East Lansing, Mich.

Sept. 8-15—International Congress of Crop Protection, Hamburg, Germany.

Sept. 24-25—New England Fertilizer Conference, Bald Peak, Colony Club, Melvin Village, N.H.

Oct. 2-4—Eleventh Annual Beltwide Cotton Mechanization Conference, Shreveport, La.

Oct. 3—New Jersey Fertilizer Conference, Rutgers University, New Brunswick, N.J.

Oct. 3-5—Pacific Northwest Plant Food Assn., Annual Convention, Sun Valley, Idaho, Leon S. Jackson, Lewis Bldg., Portland 4, Ore., Secretary.

Oct. 7-8—Western Agricultural Chemicals Assn., Fall Meeting, Villa Hotel, San Mateo, Cal., C. O. Barnard, 2466 Kenwood Ave., San Jose 28, Cal., Executive Secretary.

Oct. 14—Sixth Annual Sales Clinic of the Salesmen's Assn., American Chemical Society, Hotel Roosevelt, New York.

Oct. 17—Conference on Chemical Control Procedures for Industry Chemical Control Analysts, Shoreham Hotel, Washington, D.C. Sponsored by National Plant Food Institute.

Oct. 18—Association of American Fertilizer Control Officials (States Relations Committee, 8 p.m. Oct. 17), Shoreham Hotel, Washington, D.C., B. D. Cloaninger, Box 392, Clemson, S.C., Secretary-Treasurer.

Oct. 29-30—Seventh Annual Northwest Garden Supply Trade Show of Oregon Feed & Seed Dealers Assn., Portland, Ore. Masonic Temple.

Oct. 29-31—Entomological Society of Canada and Entomological Society of Alberta, Annual Meetings, Lethbridge, Alberta.

Oct. 31-Nov. 1—Second Annual Southern Fertilizer Conference and Second Annual Southern Soil Fertility Conference, Dinkler Plaza Hotel, Atlanta, Ga.

Nov. 3-5—California Fertilizer Assn. 34th Annual Convention, St. Francis Hotel, San Francisco, Sidney H. Bierly, General Manager, 475 Huntington Drive, San Marino 9, Cal.

Nov. 6-8—Fertilizer Industry Round Table, Sheraton Park Hotel, Washington, D.C.

Nov. 17-19—National Fertilizer Solutions Assn., Annual Convention, Netherland-Hilton Hotel, Cincinnati, Muriel F. Collie, 2217 Tribune Tower, Chicago 11, Ill.

Dec. 1-3—Southern Seedsmen's Assn., Jung Hotel, New Orleans.

Dec. 2-5—Entomological Society of America, 5th Annual Meeting, Hotel Peabody, Memphis, Tenn., R. H. Nelson, 1530 P St., N.W., Washington 5, D.C., Executive Secretary.

Dec. 2-5—Cotton States Branch, Entomological Society of America, 32nd Annual Meeting, Hotel Peabody, Memphis, Tenn., M. E. Merkl, Box 202, Leland, Miss., Secretary-Treasurer.

Dec. 9-12—Chemical Specialties Manufacturers Assn., Hollywood Beach Hotel, Hollywood, Fla.

Dec. 10-12—North Central Weed Control Conference, 14th Annual Meeting, Hotel Savory, Des Moines, Iowa. Lyle A. Derscheid, agronomy department, South Dakota State College, Brookings, Program Chairman.

Dec. 11-13—Agricultural Ammonia Institute, Seventh Annual Meeting, Hotel Marion, Little Rock, Ark., Jack F. Criswell, Claridge Hotel, Memphis, Executive Vice President.

Dec. 12-13—Beltwide Cotton Production Conference, Hotel Peabody, Memphis, Tenn.

1958

Jan. 7-8—Texas Fertilizer Conference, Texas A&M, College Station, Texas.

Jan. 13-15, 1958—Weed Society of America and Southern Weed Conference, joint meeting, Peabody Hotel, Memphis, Tenn.

Jan. 21-23—California Weed Conference, San Jose, Cal.

Feb. 13-14—Agronomists-Industry Joint Meeting, Edgewater Beach Hotel, Chicago, sponsored by the Middle West Soil Improvement Committee, Z. H. Beers, 228 N. LaSalle St., Chicago 1, Ill., Executive Secretary.

March 4-5—Western Cotton Production Conference, Hotel Cortez, El Paso, Texas, Conference Sponsored by the National Cotton Council and the Five State Cotton Growers Assn.

July 18-19—Southwest Fertilizer Conference and Grade Hearing, Buccaneer Hotel, Galveston, Texas.

Stauffer Names Two Sales Representatives

NEW YORK—Martin L. Rice and Robert W. Rech have been named technical sales representatives for the Northeast Agricultural Chemicals Division of Stauffer Chemical Co., according to an announcement by Daniel J. Keating, vice president, Agricultural Chemicals Division.

Mr. Rice was graduated from Pennsylvania State University in 1950 with a B.S. in horticulture and in 1951 obtained his M.S. degree in pomology. Before entering the army in 1954, he was manager of orchards for Bowman Apple Products Co., Mt. Vernon, Va. Mr. Rice will cover central and eastern Pennsylvania and the northern portion of the Shenandoah Valley from his headquarters in Gettysburg, Pa.

Mr. Rech received his M.A. degree in entomology from Miami University (Ohio) in 1948. He was previously New England branch manager for another insecticide manufacturer. A resident of Ashland, Ohio, Mr. Rech will cover Ohio, north of Columbus, and several counties of western Pennsylvania.

PEG BOARD FOR LITERATURE—Manufacturers' literature is prominently displayed on this 4 by 8-ft. peg board at the Donlea Town & Country Store, Albert Lea, Minn., which was recently opened. The literature is available for fertilizer, pesticide, seed, and garden and yard equipment customers.

Cutting Down on Fertilizer Doesn't Pay, Specialists Say

ST. PAUL—Even though farmers may be looking for extra ways to reduce costs this year, it won't pay them to cut down on fertilizer for the corn crop.

That advice comes from Hal Routhe, extension farm management specialist, and Charles Simkins, extension soils specialist at the University of Minnesota. They point out that with normal weather, fertilizing corn according to soil test will pay off even if corn drops to $1 bu. this fall.

They base that statement on average fertilizer returns as determined from farm demonstrations and experimental work around southern Minnesota in recent years.

These figures show that unfertilized first-year corn, after legume crops, yields about 20 bu. per acre lower than fertilized corn fields. For second-year corn, unfertilized fields average 30 bu. less. Fertilizing according to soil test in southern Minnesota averages about $12 per acre for first-year corn and $18 for second-year corn, based on current fertilizer prices.

In both cases, though, the average return is $1 67 for each dollar's worth of fertilizer put on the land—figuring corn at $1 bu.

Nitragin Co. Holds Sales Conference

MILWAUKEE—The annual national sales conference of the Nitragin Co. was held recently at the home office in Milwaukee. Key regional personnel, gathered to hear about the year's sales and advertising plans, were introduced to new company products and saw latest developments in the field of plant growth research.

John A. Matchette, president, told the men that the continued growth pattern of Nitragin products depended more and more on quality, new products and salesmanship. "No product can depend on wars, or war scares or government programs for profit these days," Mr. Matchette said.

Nitra-Grow and Nitra-Tone were the two products introduced in the meeting. Nitra-Grow is a planting mixture for outdoor and indoor plants, lawn and garden seeds and bulbs. Nitra-Tone is a gibberellic acid plant growth stimulant in tablet form.

The 60-year-old company has launched a coordinated sales and advertising program which includes the new products. "Test campaigns in key areas are now underway, and results thus far are extremely satisfying," John M. Trytten, the firm's marketing director, told the group. In addition, the sales representatives were introduced to a new packaging program now under way.

Pesticide Safety Drive Started in Texas

COLLEGE STATION, TEXAS—The Texas Extension Service is starting a safety campaign for those who handle toxic preparations.

It is cooperating with the Texas Department of Health and the Texas Medical Assn. to acquaint people with the dangers of new chemicals and to provide immediate and effective treatment in case of contamination.

Already one poison control center has been established, and others are planned, according to F. M. Fuller, Texas A&M entomologist. The center is located at Austin and is in charge of W. L. Wilson, M.D. It can be reached day or night on an emergency basis.

Mr. Fuller says kits have been prepared for information and safe handling of poisons and can be secured by any doctor or medical unit.

Howard B. Casper

OUGH APPOINTMENT — Announcement has been made by M. J. Weber, vice president, operating services of the Frank G. Hough Co., Libertyville, Ill., of the appointment of Howard B. Casper as purchasing agent. Mr. Casper has been associated with the company for 12 years as both a junior and senior buyer and as assistant purchasing agent. He attended Lewis Institute, Chicago College of Commerce and is a graduate of the Industrial Management Institute of Lake Forest College.

Fertilization of Fish Ponds in South Carolina Shows Big Potential

COLUMBIA, S.C.—Use of fertilizer in fish ponds is increasing greatly, as literally hundreds of new farm ponds are constructed in South Carolina each year, the South Carolina office of the U.S. Soil Conservation Service reported here.

Total number of ponds under the SCS program in the state, as of last December when statistics were last compiled, was 15,214. Number of ponds not under the SCS program in the state is not definitely known. The South Carolina Wildlife Resources Commission estimates that at least 3,000 additional ponds exist, bringing the state's total to at least 18,000.

These ponds, if properly managed for fish production, generally require 1,000 lb. of fertilizer per acre per season, the SCS advises. Many ponds which have low fertility to begin with may require as much as 2,000 lb. per acre per season.

According to the Soil Conservation Service, ponds used for fish production should be fertilized so that microscopic algae in the water multiply to the extent that a bright object goes out of sight 12 in. below the surface of the water.

Nevada to Increase Brush Control Work

RENO, NEV.—The Bureau of Reclamation has almost doubled its annual research grant to the Max C. Fleischmann College of Agriculture, University of Nevada. Two years ago the university received $4,500 on a biennial basis or broken down on an annual basis, $2,250 per year. This year, the grant for a single year is $4,000.

The money will be used to further brush control work already in progress, and in addition, investigation into methods of willow and wild rose control will be added to the project.

The increase in funds has enabled the Department of Agronomy and Range Management to employ an additional research technician for the project. He is Donald O. Toci, stationed at Battle Mountain for the summer.

University of California Receives Donations

BERKELEY, CAL.—Six cash donations to the University of California, Division of Agricultural Sciences, totaling $5,850 were made during April to promote several research studies in the field of agricultural chemicals.

In addition to these, 17 other gifts were given to the University consisting of insecticides, fertilizers, and soil conditioners to contribute further to these and other research projects, underway on the various campuses of the University.

The Dow Chemical Co., western division, granted $3,000 for basic and applied research studies on the control of insect pests of citrus and other crops, with Dow chemicals. Three drums of Dowfume W-85 were also given for this project.

The Collins Pine Co. gave $1,000 for forest entomological research. Three gifts of $500 each were made by the E. I. du Pont de Nemours & Co., for research on substituted urea herbicides; by the Monsanto Chemical Co., for research on chemicals of potential value as nematocides; and by the Velsicol Chemical Corp., for research on toxicity to insects of chlordane and/or heptachlor and related chemicals. The sixth grant amounting to $350 was made by American Cyanamid Co. for fertilization studies on bermudagrass turf.

ACP Business Worth $15 Million to Georgia Dealers, Official Says

ATHENS, GA.—The Agricultural Conservation Program creates $15 million worth of business annually for Georgia dealers who supply seed, lime, fertilizer and other materials and services used by farmers in carrying out soil and water conservation practices.

"Georgia farmers earn and receive more than $7.5 million annually from the federal government through the ACP," declared John F. Bradley, administrative officer of the State Agricultural Stabilization and Conservation Committee.

He said that because of limitations on rates of payment and available funds, ACP payments average somewhat less than one half of the cost of the materials and services used in carrying out the practices.

"It is a conservative estimate that Georgia farmers have been spending $15 million annually for materials and services to carry out ACP practices," he said.

TO STUDY WITH ACS

COLUMBIA, MO.—Ellis R. Graham, professor of soils at the University of Missouri, has been granted a leave of absence to study with the Atomic Energy Commission, according to John H. Longwell, dean of the College of Agriculture. Prof. Graham will spend the summer months at Oak Ridge, Tenn., and the academic year at Los Alamos, N.M.

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Ford S. Prince, Pioneer New Hampshire Pasture-Forage Production Man, Retires

DURHAM, N.H.—Prof. Ford S. Prince, University of New Hampshire agronomist and a pioneer worker for improved pastures and forage production in the Northeast, has retired.

Mr. Prince, a native of Conover, Ohio, joined the University of New Hampshire College of Agriculture agronomy staff in 1914, following graduation from the University of Illinois the previous year. This was the beginning of a long career in teaching classes in soils, fertilizers and farm management.

After service as a county agricultural agent in Xenia, Ohio from 1918 to 1925, he returned to New Hampshire.

Here he plunged into research which produced a body of knowledge which he proceeded to use to convince farmers of the value of new pasture practices. Mr. Prince worked on the fertility requirements for alfalfa, found a definite need for the use of more potash. Since very little experimentation had been done on the production of grass hay, he began studies on it from scratch.

The possibilities of clover forage intrigued him. Nationally he was a pioneer in getting ladino clover grown on the farm. He stressed the need for top dressing each year and for repeated fertilization yearly.

In 1926 he turned his hand to increasing potato yields and organized the New Hampshire 300 Bushel Potato Club. Application of improved technology has boosted potato returns tremendously. For example, the 300-bu. beginning has burgeoned into a top harvest of 783 bu. an acre for the 1956 club winner. And nine men each raised over 600 bu. on the acre examined by the judge.

By 1929 Mr. Prince was operating forage crop test plots around the state. He carried on breeding work with Timothy or Herd's grass, a favorite crop which had in Colonial times been introduced into America on the New Hampshire coast not far from Durham.

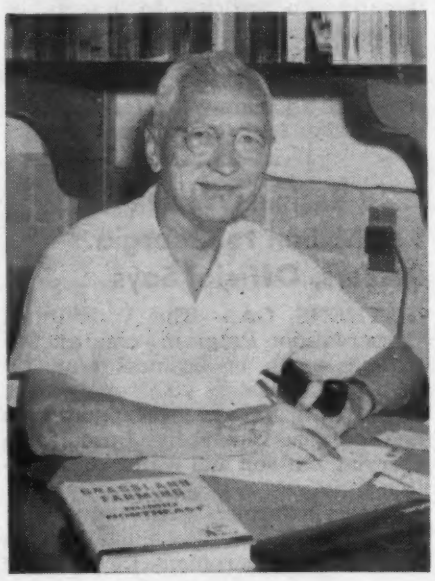
All the while the agronomist was tramping the state's farm lands with county agents, farmers and his students. He carried with him constantly the spirit of progress. It rubbed off on dairymen who put the results of years of research into profitable use.

Mr. Prince spent the summer of 1938 at the University of Wales, Aberystwyth, delving into the complexities of plant breeding. In later years he was to take his knowledge abroad, for in 1951 he joined a Marshall Plan survey group studying the grasslands situation in the Mediterranean countries. His travels took him to England, France, Italy, Turkey and Greece.

In 1947 when New Hampshire's agricultural agencies and organizations teamed up to create the Green Pastures program, Mr. Prince played a big part in helping to organize material, methods and procedures to be used in scoring farms and distributing information. When Green Pastures was taken up on a New England wide basis in 1948, he was called in to assist and has been identified with the program ever since.

Through Green Pastures' long and productive career, Mr. Prince has acted as state judge, has prepared over the years scores of popular and technical publications helpful to participants and has brought his promotional abilities to focus using mass media. His painstaking summaries of yearly Green Pastures efforts in which he points up lessons learned on farms in many quarters of the state are considered one of the most worthwhile products of the grasslands project.

Back in 1926, Mr. Prince's zeal in advertising the merits of alfalfa brought him the distinction of making the first agricultural broadcast in the state. A heavy snow had forced cancellation of a scheduled extension meeting. Mr. Prince and Joseph A. Horn, then Balknap County agricultural agent, took to the air over WLNH, Laconia, then only a few months old.



Ford S. Prince

Recognized as an international authority on grasslands and forage crops, Mr. Prince was elected a fellow of the American Society of Agronomy in 1949. Until 1952 he served as a collaborator of the U.S. Regional Pasture Laboratory, State College, Pa., and contributed articles to scientific journals. During his years at the University of New Hampshire he was chairman of the Department of Agronomy.

But perhaps he's best known as the down-to-earth teacher and friend of the farmer. As one dairyman noted recently, "He's recommended pasture rotation from away back. Then through persistence he's managed to open our eyes." Another well-known New Hampshire milk-maker credits Mr. Prince with "giving me more help on crops through the years than any other man in New Hampshire."

Mr. Prince recently completed his first book, "Grassland Farming in the Humid Northeast." It's already being used in land-grant institutions.

In typical modesty Mr. Prince told a New Hampshire Green Pastures group honoring him, "If New Hampshire is any greener because of my having been here, I'm proud of it." Mr. and Mrs. Prince live in Durham. They're the parents of two daughters, Mrs. Joan Soule of Concord and Mrs. Barbara P. Eckman of New York City.

Bogle Names Plant Head, Sales Engineer

ALEXANDRIA, VA.—William C. Parrish, Jr., has been named plant superintendent for the R. H. Bogle Co., pesticide formulator here, according to an announcement by Ralph H. Bogle, Jr., vice president.

Mr. Parrish succeeds R. E. Stuart, who died June 24 in Washington, D.C. after a long illness. He had joined the Bogle firm in April, 1944. Mr. Parrish joined the firm in May, 1944 as a service engineer.

James M. Brasfield has been appointed sales engineer for the Bogle company. He attended the Virginia Polytechnic Institute and joined the armed services in 1943. He served with the infantry in the Pacific Theater, attaining the rank of major. In 1946, Mr. Brasfield entered business for himself which included a custom weed and brush spraying operation.

Supply Store Opens

VANCOUVER, WASH.—Columbia Farmers Supply Assn. recently opened for business in its new plant at 7904 Highway 99 Hazel Dell, near here.

PACIFIC NORTHWEST MEETING

(Continued from page 1)

production, improved growth of planted stock, improved quality of nursery stock, and improved undesirable forest soil conditions.

The total area of land needing some form of treatment is large, Dr. Gessel said. The individual holdings are also large.

"The necessary information to carry out a program of fertilization is very meager," Dr. Gessel said. "Foresters will not be sold on easy-quick cures. A great deal of good research work must be done on our soils and forests before any program can function successfully. The wrong approach and overselling with wrong treatments will quickly kill the potential."

M. J. Johnson, Central Oregon Experiment Station, listed results of potato fertilization experiments in central Oregon.

The objective of the experiment was to determine which fertilizer elements were required for potato production in central Oregon and the approximate range of that need. It was assumed that sulfur was adequately supplied during the remainder of the rotation and not a factor in potato production. During 1949, 1950 and 1951 fertilizers were applied as ammonium sulphate, muriate or sulphate of potash and superphosphate.

Maximum yields from a factorial experiment with nitrogen, phosphorus and potash supplied at the 75 lb. level resulted in increases of 93.6 bu. per acre of potatoes from nitrogen, 39.6 bu. from phosphorus and 12.5 bu. from potash. Results indicated that there was no yield advantage in increasing phosphate and potash above the 75 lb. level but that profitable increases could be obtained from more nitrogen, Mr. Johnson said.

In 1952 trials tested nitrogen increments of 50, 75, 100, 125 and 150 lb. of N and tested the response to sulfur. The results indicated 100 lb. of N to be optimum nitrogen rate and a response to sulfur as a potato fertilizer.

In 1953 and 1954 a factorial experiment was designed to determine the response of nitrogen, phosphorus and potash free from the influence of sulfur and to further test the need of sulfur as a fertilizer for potatoes. N and S were supplied at 100 lb. level and P and K at the 75 lb. level. Results indicated the following maximum yield increases: 143.8 bu. per acre from nitrogen, 108.1 bu. from phosphorus, 54.2 bu. from potash and 18.4 bu. from sulfur. Of the eight locations, four gave no response to sulfur and two locations resulted in 48 bu. increases from sulfur.

Information was taken on the effect of fertilizers on market grade and specific gravity. Nitrogen tended to lower market grade on some locations and had no effect on other locations. Fertilizers have a significant effect on specific gravity but on an annual basis it would probably be impossible to control specific gravity with fertilizers, Mr. Johnson said.

Darrell O. Turner, Western Washington Experiment Station, reported on pasture fertility work in western Washington.

Objectives of outlying testing are to obtain data for correlation between forage yields and soil tests, to provide result demonstration plots for county agents, and to obtain basic information on effect of liming to certain base saturation percentages. Plots are located in 14 western Washington counties.

Treatments involve nitrogen, phosphorus, potassium, magnesium, lime and gypsum. Predictions based on soil tests and related to statistically significant results show such predictions to be 81% correct to date for phosphorus, potassium, and lime. Nitrogen has given a response in 84% of instances tried.

A detailed study of the fertility status of Clallam County soils has been completed. Objectives were to determine the fertility of Clallam County soils by means of fertility trials and soil tests to characterize these soils as to pH, C.E.C., exchangeable cations (K, Ca, and Mg), and to correlate chemical and morphological soil characteristics with fertility levels.

The county was divided into three soil areas based upon precipitation and its effect on the soil. Precipitation ranged from 12" to 150". Wide differences in soil fertility were found among the three soil areas. More phosphorus, potassium and calcium were found under low precipitation than under high precipitation. These differences were reflected in forage yields. Predictions based on soil tests and related to statistically significant results obtained on forage crops showed such predictions to be 80% correct.

PASTURE

(Continued from page 1)

pasture and bad pasture means in terms of pounds of milk per dairy cow.

Speaking broadly on the subject of pasture fertilization these officials declare that adequate and proper fertilization of pasture land means stability of production of the pasture crop. It means earlier bearing in the spring and later output in the fall.

In short, adequate fertilization is the elastic band for pasture acreage.

Essentially the use of fertilizer in pasture acreage is somewhat different than in production of annual crops. The use of fertilizer varies seasonally and by climatic areas of the nation.

Primarily pasture acreage fertilization has a dual purpose—first to establish a pasture crop and next to attain stability of production and to expand the availability from early spring until late fall.

Pasture acreage fertilization compares with other uses of plant food according to the requirements of the soil being used, but also it will vary between the pasture crop requirements. For instance, some pastureland will require development of special plants to provide a balanced pasture diet.

Pasture acreage fertilization like all other plant food problems has become a custom-tailored task for each and every farm, for the climatic areas of the nation and for the end uses to which pasture is put. It will differ between the dairy farms in the humid areas of the East and the dry land areas of the Southwest.

Although Beltsville scientists were not willing to comment it has been learned from other sources in government that one of the major weaknesses of the operation of the soil bank has been its inattention to the conservation aspects. It is in these aspects where greater long range dividend paying gains could be achieved rather than the short term transient phases of the acreage reserve program.

Brief comments from Beltsville scientists are merely a preview of what they are expected to reveal to Croplife in the next few weeks—comments which are likely to confirm the statement that pasture land fertilization may truly be a treasure island for the plant food industry.

THIEF STEALS SPRAY

BAKERSFIELD, CAL. — A thief stole 23 gallons of Systox spray from the storage area of the Atwood Crop Duster Co., valued at $27 a gallon.

"New Look" in Farm Communities Will Feature Stronger Urban Ties

WASHINGTON—With the marked changes that are going on in agriculture, just about everyone is talking these days about farm trends of one sort or another—most of which relate directly or indirectly to the farm supply business.

One of the things being mentioned now is that the "new look" in farm communities will feature stronger urban ties.

Examining past and present patterns of development, U.S. Department of Agriculture economists predict that roots of the rural community of 1975 will be sunk deeper into urban ground. Their findings suggest that a new agricultural community is emerging which might be described as "city life widely spaced."

The trend toward greater dependence of agricultural communities on larger towns and cities was described recently by John H. Southern, a USDA economist.

Major events that will largely determine the pattern of the rural community 20 years from now have already happened, Mr. Southern said. In a sense, therefore, no crystal ball gazing is required to visualize the main features of the future new look of the U.S. farm community.

Events or situations that determine what the character of farm communities will be in 1975 include: (1) the revolution in agricultural technology and farm management; (2) population gains and the growth of urban centers; (3) the impending labor shortage; (4) the rising standard of living.

More Supplies from Towns

Showing how the rural community is more than ever dependent on the urban, Mr. Southern noted that just before World War II, only about 25% of farm production supplies—fertilizers, feeds, seeds—came from urban-industry sources. Now, farmers get more than 60% of these supplies from cities and factories. With the march of technology, the percentage might reach 75 or more before 1975.

Also, many chores once done by farmers themselves are now often performed by urban industries or individuals—things like contract hauling of livestock, custom harvesting, weed control, etc. The upward trend in this direction is likely to continue.

While more highly commercialized agriculture brings about larger farms, greater investments, and greater incomes, it may also transfer certain functions and some decision making from the farm to nonfarm sectors, Mr. Southern said. This can be seen, for example, in broiler production where rural and urban interests are closely linked.

Farm land values will be determined to an increasing extent by nonagricultural factors, such as location of good roads, demands of nonfarmer buyers and suburbanization.

Suburban communities have grown in recent years at about 3½ times the rate of the gain in national population. This movement into the countryside will increase rather than diminish.

By 1975 the total U.S. population is expected to increase by two fifths, but the working force—made up of persons already born—will have increased by only one fifth. During the same period, farm population may decline by as much as 30%. All this makes for closer ties with urban communities, since the remaining rural families will have more members working off the farm in urban jobs.

A new standard of living has spread rapidly over the nation in the past 20 years. The levels of living of farm and city people are more nearly alike now than they were only a short time ago. The gap will continue to narrow.

Socially, also, the new look of the agricultural community is one of greater dependence on urban centers.

In the new agricultural community, various occupational groups will live in the rural areas, and many of them will have jobs in towns or cities.

Thus evidence is piling up that the farm communities of the future will be drawn more closely than ever before into the life of urban communities.

Tenth Birthday

ATLANTA, GA.—Lester Laboratories, Inc., which began operations at its East Point plant in 1947, recently celebrated its tenth anniversary with a buffet supper for its employees. Aside from the Atlanta staff, company representatives from Ohio, Kentucky, Virginia, North Carolina, South Carolina, Georgia, Alabama, Mississippi and Florida were present. The firm manufactures chemical specialties and an insecticide, Bainicide. Officers include Lester A. Friedman, Jr., president; Will Pels, vice president, and Dr. Fred W. J. Lieu, chief chemist.

North Dakota Farmer Boosts Corn Yield with Weed Control Program

BISMARCK, N.D.—A weed control program for corn that requires only one cultivation has been developed by Jake Swenson who farms south of Bismarck. He usually plants about 300 to 350 acres of corn. Good quality corn is produced in this area, but farmers here have had a great deal of trouble controlling cocklebur, mustard, pigeongrass, Canadian thistle and sowthistle, reports John Coles, Burleigh County extension agent.

Mr. Swenson used the following weed control system, which has reduced the cost of producing corn. The land is tilled lightly in the fall and plowed at corn planting time the next spring. When the corn has started to sprout, the fields are harrowed lengthwise and again at a 45° angle. After the soil has crusted, Mr. Swenson uses a rotary hoe to kill the weeds.

The rotary hoe is used twice in each field. The last time the hoe is used, the corn is usually 3 to 4 inches tall. When the corn is about 6 inches tall, it is sprayed at the regular rate of ¼ to ½ lb. 2,4-D amine per acre to control the cocklebur. Later, when sowthistle and Canadian thistle appear, the field is sprayed again with 2,4-D. The corn is cultivated when it is about 1 foot high. The shovels of the cultivator are spaced 16 inches apart to avoid root pruning. Mr. Swenson estimates that his weed control program increases corn production from ⅓ to ½ over the former yield.

R. L. Waring in New AACCO Sales Post

NEW YORK—R. L. Waring, Jr., formerly manager of Baltimore sales for the American Agricultural Chemical Co., has become responsible for all phases of fertilizer sales operations as manager, fertilizer sales, for the firm's New York office, it was announced June 24.

G.L.F. PAYMENTS

ITHACA, N.Y.—Charles N. Silcox, general manager of Cooperative G.L.F. Exchange, Inc., has announced payments to stockholder-members will total $3,800,000 on the cooperative's business for the fiscal year ended June 30. Included is a $1 million patronage refund, which amounts to 1% of the wholesale value of formula feed, formula fertilizer, chemicals, seed and farm hardware purchased by members from G.L.F. between July 1, 1956, and June 30, 1957.

Books on Fertilizers And Their Use

MANUAL ON FERTILIZER MANUFACTURE—Second Edition
Vincent Sauchelli

A complete up-to-date revision of this well known book, that reviews in simple, everyday language the processes of manufacture of superphosphates, of ammoniation, and the formulation and preparation of mixed fertilizers. Indispensable to fertilizer plant supervisors and operators, and a valuable aid to research men and teachers. New chapters added: on plant nutrition, mixed fertilizers, ammoniation, granulation, revised and brought up-to-date. 80 tables of practical information $4.50

SOIL FERTILITY AND FERTILIZERS (1956)
Samuel L. Tisdale and Werner L. Nelson

An advanced college text, for juniors and seniors, following backgrounding course in soils. Covers elements required in plant nutrition, their role in plant growth, and the soil reactions to these nutrients. Several chapters on manufacture, properties and agronomic value of fertilizers and fertilizer materials. Latter part covers soil fertility evaluation and use of fertilizers in sound management program. 430 pages, cloth bound $7.75

PLANT REGULATORS IN AGRICULTURE
Dr. Harold B. Tukey

Published September, 1954. A text book giving background material for county agents, farmers, citrus growers, nurserymen, gardeners; providing fundamentals and general principles; covers encouragement of roots by plant regulators, control of flowering and fruit setting, parthenocarpy, abscission, prevention of preharvest fruit drop, delaying foliation and blossoming, maturing and ripening, inhibition of sprouting and weed control. Brings together specialized knowledge of 17 authorities in the field, with two chapters written by Dr. Tukey, head of department of horticulture at Michigan State College. 269 pages $5.50

THE CARE AND FEEDING OF GARDEN PLANTS
Published jointly by the American Society for Horticultural Science and the National Fertilizer Association.

An entirely new, one-of-a-kind book, it is designed to acquaint readers with nutritional deficiency symptoms or "hunger signs" of common yard and garden plants including lawn grasses, shrubs, flowers, garden vegetables, and cane and tree fruits. It stresses plant "feeding," or "what makes plants grow." Sixteen of the nation's leading horticultural authorities collaborated in its preparation. Cloth bound, 300 pages of text and illustrations including 37 pages in full color $3.00

PHOSPHATES IN AGRICULTURE
Dr. Vincent Sauchelli

A valuable book for the fertilizer salesman, agricultural teacher, farmer, fertilizer agent and county agent. Deals with rock phosphate versus superphosphate and colloidal phosphate, with the origin of phosphorus, the mining and processing of the phosphate rock, granulation of superphosphates, fixation of phosphates in the soil, losses of phosphorus and replenishments, phosphorus in nutrition, radioactive phosphorus, basic slag, fused and sintered phosphates and TVA research data on phosphates from field tests in 13 states. 176 pages and well illustrated $2.75

ECONOMIC AND TECHNICAL ANALYSIS OF FERTILIZER INNOVATIONS AND RESOURCE USE
By E. L. Baum, Earl Heady, John Pesek and Clifford Hildreth.

This book is the outgrowth of seminar sessions sponsored by TVA in 1956. Part I—Physical and Economic Aspects of Water Solubility in Fertilizers. Part II—Examination of Liquid Fertilizers and Related Marketing Problem. Part III—Methodological Procedures in the Study of Agronomic and Economic Efficiency in Rate of Application, Nutrient Ratios and Farm Use of Fertilizers. Part IV—Farm Planning Procedures for Optimum Resource Use. Part V—Agricultural Policy Implications of Technological Change. It presents new methodological techniques for more efficient handling of research problems related to fertilizers and provides more meaningful answers to problems of practical application $3.50

HUNGER SIGNS IN CROPS—Second Edition
A symposium—published jointly by the American Society of Agronomy and the National Fertilizer Association.

A comprehensive study of nutrient-deficiency symptoms in crops compiled by 19 of the leading authorities in the field. It is being widely used by college professors, research and extension specialists, industrial chemists and agronomists, county agents and teachers of vocational agriculture. Many farmers have found it of particular value in planning their fertilizer programs. Cloth bound, 390 pages, 242 illustrations, including 124 in full color $4.50

USING COMMERCIAL FERTILIZER (1952)
Malcolm H. McVickar

Dr. McVickar is chief agronomist of the National Fertilizer Assn. The book deals specifically with commercial fertilizer, how it is produced and how to use it. It is non-technical. It includes chapters on how to measure fertility of soils, secondary and trace-element plant foods. 208 pages, 106 illustrations, cloth bound..... $3.00

COMMERCIAL FERTILIZERS, Their Sources and Use—Fifth Edition (1955)
Gilbeart H. Collings

Based upon the author's practical experience as an experiment station agronomist and teacher, and incorporating information on recent developments by agronomists, chemists, engineers and fertilizer manufacturers. Authoritative on problems concerning commercial fertilizers and their use in gaining larger yields. 160 illustrations, 522 pages $8.00

APPROVED PRACTICES IN PASTURE MANAGEMENT (1956)
M. H. McVikar, Ph.D.

Outlines clearly and concisely how to have productive pastures to furnish high-quality forage for livestock, economically and efficiently. Written for grassland farmers. Covers the important activities associated with establishment, management and efficient use of pastures as grazing lands or as a source of fine winter feed for livestock. It is as specific as possible for all U.S. pasture areas. Twenty chapters, 256 pages, illustrated $2.40

MANURES AND FERTILIZERS

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A Look at The "Agricultural Revolution"

A thoughtful discussion on the implications of an "agricultural revolution" appeared in a recent issue of the New Hampshire agricultural experiment station's publication, "Progress Report." Authored by Owen B. Durgin, it contains some interesting reflections which Croplife's readers might enjoy looking over. The article follows:

Much has been written in the past few years of the "Agricultural Revolution." Most of this material has related this later "revolution" to the Industrial Revolution and technological advance. Little attention, however, has been paid to the details either of the broad change itself or of its direct impact on the individual farm. Many students of rural society have pointed out the differences between the rural and urban worlds. They could have shown that these differences have become slighter and that the rural change has been in the direction of existing urban standards, implying that the cultural values of farmers and other rural residents are changing in the direction of presently existing urban values.

Earlier in history and prevalent among some groups today is the attitude that farming is an occupation unlike other occupations. Somehow or other it is a "way of life" rather than a business per se. Examination of the editorial statements of leading farm publications and statements by the leaders of some farm organizations tend to support this assertion. With the invention of double entry bookkeeping and the separation of the business from the individual, industrial organization underwent rather rapid rationalization.

Agriculture is presently becoming more and more rationalized just as business and industry have been in the past, but the farmer still has a long way to go in separating the business from the family. The present time affords an excellent opportunity to watch technology change the values of the farm family and, conversely, the way the value system modifies the use of this new technology. Such observation helps lead to an insight into the process by which the farm family adjusts to the demands of society.

If the attitude of farm people that farming is a way of life had remained intact, many of the recent changes in the agricultural situation would have been much less rapid. The "revolution" in agriculture is more apparent than real. The changes that have taken place are part of an evolutionary process whose roots go deeply back in history. The changes have been taking place at an increasing rate lately, which has made them appear more dramatic. As illustration, one of the earlier types of agricultural integration was that about the central farm or manor, and this lasted for approximately four centuries.

A second form, growing out of this system, was the farm village oriented about a local market. This lasted until about the 19th century or approximately three centuries. During the past century there has been a shift from local to regional and concurrently a shift from regional to national markets. These are all forms of integrating farm production into the total industrial web of society, and the shift from one form of integration to another has been speeded up over a time.

What is more, each of these changes in agricultural organization has been in the direction of greater specialization. At least two non-agricultural changes had to take place before this acceleration of rate could occur. First, transportation had to change. Before a specialization of agriculture could occur it had to be possible to transport quantities of food and fiber from the area where it was grown to the area of utilization. Second, communication had to become sufficiently rapid and reliable to permit reciprocal knowledge on the part of grower and buyer of market and sources.

New forms of transportation not only made the interchange of agricultural products possible but also created greater financial strain, due to our tax system, on the local area because these new modes of transportation required better and better roads. At one point, when the secondary highways were not greatly differentiated from farm lanes, it was a relatively simple matter to blanket a whole area with a network of roads. As these roads became more costly to maintain, some of this network of roads had to be abandoned and this led to the appreciation of some property and the depreciation of others.

The new media of communication not only made information available in greater quantity with reduced time lapse for the business man and the farmer, but in addition held up urban standards to be emulated by rural people. As in the case of transportation, the utilization of new advances was not confined to matters of business.

A variety of ideas entirely unrelated to the functioning of an integrated economic system could be transmitted with exactly the same efficiency as market prices. These communication media tended to be staffed with urban-oriented people, working within the framework of their own values. The standards they supported included both attitudes toward specific objects and ideas, and desirable objects of material possession. These attitudes were neither better nor worse than those held by rural people but were in many respects different. Many of the changes in rural values derived from the urban-oriented communications system had to do with the acceptance of the "scientific method" as opposed to tradition and rule of thumb.

Agricultural science made great advances chemically, biologically, and mechanically. There were developed new methods of insect and disease control, improved plant and animal strains, and equipment designed to perform heavy agricultural labor more easily and rapidly. Their acceptance was hastened by the change in values aided by the new communication media. In areas where such value change has not taken place, adoption has been very slow, if present at all.

Some of these new developments could be adopted by farms of any size (sprays, fertilizers, and hybrid seeds) since they became practicable by yielding an immediate return sufficiently greater than their cost. Others could be profitably employed only on farms above a given size, and the individual desiring to utilize these devices either had to put more of his own land into cultivation to achieve this size or purchase other farm units.

Improper adoption of some of these items led to a decrease rather than an increase in family living income. The pressures for adoption were, often as not, outside the economic sphere. It was important to a farmer's position in the community to possess the proper equipment. It was equally important to his wife's position that she also have approved possessions. This led to excessively heavy debt load in some cases and in others to partial unemployment of family labor.

Even though some of the technological change in agriculture is adoptable by farms of any size, the adoption of a specific item on a larger farm is likely to mean more in terms of larger income than on a smaller one. Therefore on most counts the advantage went to the larger unit. Over time the trend must then be for a farmer to increase his farm size or get out.

At an early stage in its growth, as indicated earlier, agriculture was integrated about the

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Croplife's Home Office

Croplife

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CROPLIFE is a controlled circulation journal published weekly. Weekly distribution of each issue is made to the fertilizer manufacturers, pesticide formulators and basic chemical manufacturers. In addition, the dealer-distributor-farm adviser segment of the agricultural chemical industry is covered on a regional (crop-area) basis with a mailing schedule which covers consecutively, one each week, four geographic regions (Northeast, South, Midwest and West) of the U.S. with one of four regional dealer issues. To those not eligible for this controlled distribution Croplife subscription rate is $5 for one year ($8 a year outside the U.S.). Single copy price, 25¢.

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EDITORIAL

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home farm. It was a self-sufficient agriculture and many of the attitudes and ideals of farming as a way of life had their genesis in this period. At a somewhat later date it became integrated about regional markets. In part because of the limited distance involved, and in part because of the cultural similarity within a region, the shift from local to regional markets did not have the same challenging effect to the values and attitudes of rural people as has the present trend towards national markets.

This progression in integration has had the effect of increasing the horizons of the individual farmer, making him aware of other sections of the country, introducing him to new concepts of inter-personal relations, methods of carrying on business, even a new concept of business itself. It has made his wife and children more aware of the goods and services expected by urban dwellers, and has led to their expectation of receiving the same. This experience has not come to all farmers at the same rate and so the confusion of values in the rural area at the present time is considerable. It may very well be that this changed level of expectation is one of the factors creating dissatisfaction in rural areas and inducing part of the off-farm movement of people, especially those in the younger adult years of life. It may also be a contributory factor to the increasing difficulty of accumulating capital, since increased demand for consumer goods, if satisfied, will reduce by a like amount the possible increments to new farming capital for that particular individual.

The inter-relationship between the changes in integration of the agricultural and industrial segments of the economy have not been divorced from the consumption habits of the people. The compacting of the industrial population into relatively dense urban settlements has placed a premium on space and time for the individual.

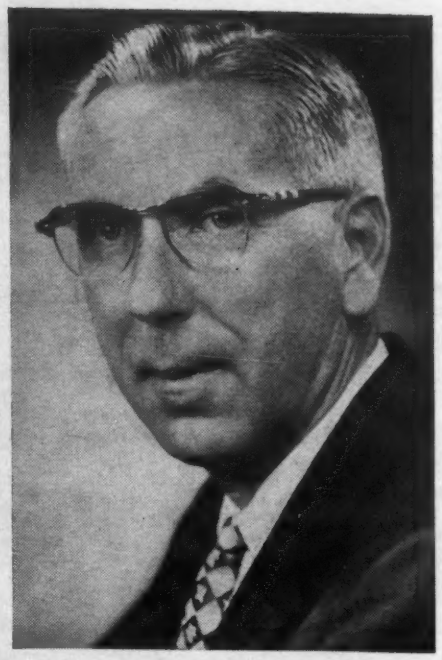
The extension of these densely populated areas requiring commutation on the part of a substantial portion of the inhabitants and the use of a large part of the mature urban population in "away-from-home" employment are major factors in this increase in value of these factors for these individuals. As a result the individual urban buyer of agricultural products desires small bulk and easy preparation, a reflection of the value of space and time in these areas. This has had the effect of tying the grower even more closely to that segment of the economy preparing these products for the consumer. It also tends to prevent the farmer, except in isolated instances, from operating on any large scale outside the integrated system.

Gypsum Gives Boost To Clover Growth

TULARE, CAL.—Fertilizing strips of land with gypsum produced far superior stands of clover growth during tests recently conducted in Tulare County, California, by Ralph L. Worrell, farm adviser.

Rose clover, sub clover, and bur clover seed were broadcast over the range. Then about 600 lb. per acre of gypsum was applied in strips across the seeded areas.

In the fertilized strips the stand and growth of legumes were good and the plants are expected to seed themselves satisfactorily. In the areas where the legumes received no sulphur from the gypsum, the stand of plants was only fair, and growth weak and in poor color, Mr. Worrell reported.



Herbert H. Harris

JOINS DIAMOND—Appointment of Herbert H. Harris of Winona, Minn. to the technical service staff of Diamond Alkali Co.'s chlorinated products division has been announced by L. Gordon Utter, manager of technical service. Making his headquarters at the Diamond Research Center in Painesville, Ohio, Mr. Harris will be concerned chiefly with technical service matters relating to Diamond insecticides as well as development of new agricultural chemicals. Mr. Harris comes to the Diamond organization from Mackwin Co., Winona, Minn., the agricultural sales division of McConnon & Co., where he has been an entomologist for the past 18 years in charge of pesticide development, research and technical service.

General Chemical Announces New Herbicide

NEW YORK — General Chemical Division, Allied Chemical & Dye Corp., New York, has announced a new weed killer, which the firm says will eradicate Johnson, Bermuda and other weed grasses with a single application.

Developed by General Chemical's research department, the product is known as Hexachloracetone and is being marketed in a number of formulations under the trade name HCA Weed Killers for use in non-crop areas.

HCA is designed for use with ordinary weed oils. General Chemical said it prevents resprouting of noxious grasses by killing the roots, gives full season control when applied at almost any time of the year and kills weeds without sterilizing the soil. In addition, HCA in oil gives immediate results by "killing back" top growth in from 12 to 48 hours after spraying, the firm said.

The new herbicide is now available in two forms: HCA Weed Killer Concentrate for dilution in oil and as a finished spray product called HCA Weed Killer which contains 2% HCA in an aromatic weed oil.

The company said that HCA is currently undergoing tests in 31 states for agricultural use. At present, however, the product is recommended only for industrial and commercial maintenance and for weed control in non-crop areas of farms.

WEED CONTROL AWARD

COLUMBIA, MO. — An annual award for weed control will be given Missouri farmers during the next 10 years, it was announced by Missouri extension field crops specialists. The award is being made in honor of the late A. C. Helm who was a member of the University of Missouri's field crops department for many years, and who served as secretary of the Missouri Seed Improvement Assn. The award will be made during the annual seed show of the Missouri Seed Improvement Assn.

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Stauffer Organizes New Agchem Sales Development Department

NEW YORK—A new sales development department has been set up by Stauffer Chemical Co.'s agricultural chemical division. The department, which is headed by Francis E. Cook as manager, will be responsible for promoting and developing sales of such newly developed agricultural chemicals as Captan, Vapam, Trithion and other compounds now emerging from Stauffer's research laboratories.

Mr. Cook, who was formerly with Stauffer's agricultural chemical research department, is a graduate of the University of California. Others assigned to the new sales development department include William B. Shafer, also a graduate of the University of California, and Daniel R. Tuite, a graduate of Harvard.

The department will be headquartered in New York and will report to Dan Keating, vice president and general manager of the agricultural chemical division.

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